THE LITERARY GAZETTE

AND

Journal of the Belles Lettres, Arts, Sciences, &c.

No. 1446. LONDON, SATURDAY, OCTOBER 5, 1844. PRICE 8*d*. *Stamped Edition, 9d.*

THE BRITISH ASSOCIATION (YORK).*

HAVING fairly introduced this meeting in our last *Gazette*, and published in full the first important Report, in which the Council states the proceedings during the past year, and given a brief sketch of the first day's sectional business, it is now our duty to go into the necessary details, and bring before our readers all the information which is annually collected into this scientific focus. [But the importance of these papers claim for them a precedence which will occupy this week all our available space.] In so doing, where we find matters of small consequence, or repetitions of what has already been made known through our columns in our last twelvemonth's notices of novelties, when produced either by individuals, London societies, or foreign communications, we shall be as concise as possible; whilst, on the other hand, we shall devote due care and pains to the exposition of every new fact of public interest, and all the papers which develop questions of national utility, or are likely to conduct to permanent improvements in our commercial and social condition.

In the first place, however, we may as well, by a little inversion, notice its *finale* on Wednesday night, at nearly the midnight hour; remarking that the *Literary Gazette* has, from the beginning, given a historical and popular, as well as strictly scientific and philosophical view of these meetings. As the only publication which has adopted this course (the volumes of the Association supplying merely the details of the sciences), we feel it a sort of duty which we owe to our readers and the public to record and offer our comments upon many matters which have no place elsewhere.

The last meeting of the year is always the most trying one for the credit of the Association, and, as between it and the rest of the world, a test of great risk and danger. "On the present occasion" (as every speaker repeatedly says), we regret to observe, that it did not escape from conclusions the opposite to those which, in our opinion, its best friends could wish. The same tone of *ultra*-panegyric, which has been censured at former meetings, was revived, and prevailed to an inordinate degree. There was no just praise given for any thing; all was in the vein of indiscriminating panegyric, with the single exception of Dean Cockburn. Now, the accommodations for the reception of the sections, committees, &c. at York were as excellent as could be, and fully realised the invitations to the place. Earl Fitzwilliam gave a handsome dinner-entertainment to about 200 members on Friday; and the Archbishop of York had daily dinner-parties at Bishopsthorpe, where all the most prominent members enjoyed the refined hospitality of his grace (for the two or three hours of time allowed by business), and as one of the platform speakers remarked, this "unbounded hospitality was the true way to the hearts of philosophers." But beyond this there was nothing. Fewer signs of common or general hospitality have not been seen since the Association was born. There were no excursions, no municipal or corporate attentions, and the smallest possible modicum of private courtesies. We could not, therefore, understand the laboured eulogies pronounced on the platform upon parties and persons who had, in truth, earned no compliment. We would not have our readers to cry stale fish, but all their fish ought not to be what Farren, the actor, calls cock-salmons! We know not what the town may have spent upon the Association; but we can guess that the members have left a good deal of money in the town. The reciprocity in our mind is all in favour of the latter. The Association was (as often stated in different language), when here before, a baby, and its pap agreed so well with it, that it has become a very stout fellow, and, as we think, required and deserved more ample nutriment than it got "on the present occasion."

One other point of the last-night oratory challenges a remark from us. The hostility of the Press to the Association was censured without qualification or reserve, in strong and ill-judged terms, as "the vulgar Press."* Now, although an eminent journal did assail the Association some years ago, and a few squibs have been fired at it since, we must complain of this sweeping condemnation of an instrument which has contributed so largely to the success of the design, and without which it never could have reached a fifth of its existing proportions. Even in our own case alone we have expended several hundred pounds in giving publicity to its proceedings, saying as little of its errors and follies as a regard for truth would permit (and all numerous bodies must present such clouts to the shafts of blame), and putting forth in the most prominent manner the inestimable services it has rendered to science.

Another topic calls for some observation. We allude to the excessive regard paid to the question raised by the Dean of York.

"Time was
That when the brains were out the man would die,
And there an end;"—

but the dean, after being brained by Prof. Sedgwick, on reading his paper in the Geological Section on Friday morning,* did "rise again," like an ubiquitous ghost, and confronted the oracles of the Association every where. Not content with slaying him in single combat, the defunct dignitary was subjected to nearly the whole platoon-firing of the platform, and thus himself and argument made of an importance to which they had no substantial title. The adage of *Qui s'excuse, s'accuse*, ought not to have been forgotten in this instance; and the man shewn up for utter ignorance of the first elements of geology was hardly worth the expenditure of so much eloquence, though he had published his Mosaic apprehensions in a six-penny pamphlet. Of two great divisions in the world, the ignorant and fanatical, and the instructed and philosophic, we will venture to say not one will be convinced one way or other by the dean's puerilities, or their exposure by the principal members of the British Association.

On Monday a select party, chiefly of electricians, met together to witness some of M. Matteucci's experiments in electricity upon animal fibre. They consisted of the application of the limbs of frogs to the pectoral muscles of living pigeons: and among the rest was the construction of a voltaic pile entirely by the limbs of frogs laid horizontally in juxtaposition and contact. There is a certain degree of cruelty in these operations, which caused us to rejoice that they were not publicly performed, nor directly connected with the proceedings of the Association. We remembered the odium Majendie.

We had written thus far, before we heard Mr. Vernon Harcourt's warm panegyric upon these experiments at the concluding meeting on Wednesday, Oct. 2; which, indeed, we were sorry to hear. If such barbarities are necessary for the promotion of scientific knowledge of essential consequence to the human race, it is due to humane feeling that they should be conducted in secrecy and privacy. We rejoice that these constituted no part of the transactions of the British Association; and that the exhibition of laying the quivering thighs of frogs just cut in two (as for fricassee) to the bare palpitating breasts of living pigeons cut open for the communication (whilst the poor birds, convulsively agitated, shut and opened their supplicating eyes to their tormentors) was only seen by an enlightened few, and publicly praised by one.

The distinguished foreigners to be invited to the meeting next year, to form a congress of *savants* and concert measures for continuing and extending the grand magnetic and meteorological observations which have thrown so much light on these sciences in the three years of which we have so many of the valuable results,—and to interest other governments and countries to unite in establishing observatories throughout the world,—are Humboldt, Gauss,

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* *Officials.*—In addition to the Presidents of Sections in our last, we have to give the names of the other principal official appointments at this meeting.

SECTION A.—*Vice-Presidents:* Prof. M'Cullagh; Rev. Dr. Robinson; Rev. Dr. Whewell; Prof. Wheatstone. *Secretaries:* Prof. Stevelly; Rev. W. Hey.

SECTION B.—*Vice-Presidents:* Marquis of Northampton, F.R.S.; Prof. Grove, F.R.S.; Dr. Daubeny, F.R.S. *Secretaries:* Dr. L. Playfair; E. Solly, Esq., F.R.S.; T. H. Barker, Esq.

SECTION C.—*Vice-Presidents:* The Earl of Enniskillen, F.R.S.; Sir H. T. De la Beche, F.R.S.; R. I. Murchison, F.R.S., P.R. Geog. S. (President for Geography); Rev. Prof. Sedgwick, F.R.S. *Secretaries:* Prof. Ansted, F.R.S.; E. H. Bunbury, M.A., F.G.S.

SECTION D.—*Vice-Presidents:* Prof. Owen; H. E. Strickland, Esq.; W. R. Spence, Esq.; Dr. Falconer. *Secretaries:* Prof. Allman; Dr. Lankester; H. Goodsir, Esq.

SECTION E.—*Vice-Presidents:* Dr. Belcombe; Dr. Goldie; Dr. Alison; Dr. Simpson. *Secretaries:* I. Erichsen, Esq.; Dr. Sargent.

SECTION F.—*Vice-Presidents:* Sir J. V. B. Johnstone, Bart.; Sir C. Lemon, Bart. (not present); T. Tooke, Esq.; G. R. Porter, Esq. *Secretaries:* J. Heywood, Esq.; J. Fletcher, Esq.; Dr. Laycock.

SECTION G.—(The *President*, Mr. G. Rennie, has not arrived.) *Vice-Presidents:* J. S. Russell, F.R.S.Ed.; R. Hodgkinson, F.R.S.; J. Taylor, F.R.S. *Secretaries:* C. Vignoles, Esq. (not here); T. Webster, Esq.

* We have reason to know, however, that the secretaries of the Association, and all its principal supporters, whilst they condemn the inconsiderate and unfounded attacks made some years ago, do highly appreciate the services rendered by periodicals of another description, which have fully and fairly represented their proceedings.

* In our opinion it was unwise to allow the dean, merely because he was a dean, to read this irregular and unconstitutional paper. No person of lesser rank (and too much deference is paid to mere rank) would have been permitted to do so.

Kupper, Arago, Weber, Hanstein, Kreil, Plana, Boyuslawski, Lamont, Gilliss, Quetelet, and others —certainly a philosophical galaxy of such renown, that even a minority of them would add a great splendour to the Cambridge assemblage.

The amount received and the tickets issued at York more than doubled those of Cork. We trust that this return to financial prosperity may not be temporary, and that the power of liberality in grants of money may be restored to the Committee of Recommendations. The grants of this year have been based on the strictest, almost painful economy, necessitated by the balance in hand at the commencement of the present meeting, and include several renewals—only such, for example, as 615*l.* for the British Association Catalogue of Stars. The tickets issued here, the sums received, and the grants voted, are as follow:

	Tickets.	Receipts.
Old life-members	263	Nil.
New life-members	146	£730 0
Old annual subscribers	47	57 0
New annual subscribers	192	384 0
Young persons and admissions to Sections only	9	9 0
Ladies	257	257 0
	914	1437 0
Sale and compositions for books		133 4
Total		£1570 4

GRANTS,

With the Name of the Member, who alone, or as the first of a Committee, is entitled to draw for the Money.

	£	s.	d.
Kew Observatory.			
Establishment	150	0	0
Barometrograph	30	0	0
	180	0	0
Mathematical and Physical Science.			
1. British Association catalogue of stars *Rev. Dr. Robinson*	615	0	0
2. Captive balloons *Rev. Dr. Robinson*	50	0	0
Meteorological observation at Inverness (*Bills*)	30	18	11
6. Magnetic and meteorological co-operation *Sir J. Herschel*	50	0	0
7. Meteorological instruments at Edinburgh (*Bills*)	18	12	6
8. Reduction of anemometrical observations *W. S. Harris, Esq.*	25	0	0
10. Nomenclature of stars *Sir J. Herschel* (*Bills*)	10	0	0
16. Electrical experiments at Kew *F. Ronalds, Esq.*	50	0	0
15. Electrical apparatus (*Bills*)	57	0	0
	906	11	5
Chemistry and Mineralogy, including their application to Agriculture and the Arts.			
1. Gases from iron furnaces *Prof. Bunsen*	50	0	0
2. Preservation of animal and vegetable substances *Dr. Daubeny*	10	0	0
3. Report on tannin *Dr. Kane*	10	0	0
4. On colouring matter *Dr. Kane*	10	0	0
5. Experiments on the Actinograph *R. Hunt, Esq.*	15	0	0
8. Ashes of plants *Prof. Graham*	50	0	0
	145	0	0
Geology and Physical Geography.			
Subterranean temperature in Ireland *T. Oldham, Esq.*	5	0	0
Microscopic structure of shells, &c. *W. Carpenter, M.D.*	20	0	0
	25	0	0
Zoology and Botany.			
Periodical phenomena of organised beings *Prof. Owen*	5	0	0
Exotic anopleura *Sir W. Jardine*	25	0	0
Vitality of seeds *H. E. Strickland*	10	0	0
Zoology of Corfu *Capt. Portlock*	10	0	0
Marine zoology of Britain *Prof E. Forbes*	20	0	0
Marine zoology of Cornwall *Prof. Owen*	10	0	0
Varieties of the human race *Dr. Hodgkin*	25	0	0
	105	0	0
Medical Science.			
Physiological action of medicines *J. Blake, Esq.*	20	0	0
Statistics.			
Statistics of sickness and mortality in York *Dr. Laycock*	40	0	0
	1421	11	5

Recommendations not involving Grants of Money.

That the thanks of the British Association be given to H. M. G. for their prompt and liberal acquiescence in the request of the Association for the publication of Mr. Forbes's "Ægean Researches" at the public cost.

That a representation be made to H. M. G. on the importance of providing adequate funds for the development of the Cautley Collection of Fossils, and publication of an account of the same. The representation to be made by a committee, consisting of the president of the British Association, the president of the Royal Society, the president of the Geological Society, in co-operation with the president of the Royal Asiatic Society.

For a representation to Government of the difficulty, delay, and expense, which attend the transmission of scientific journals between the British Isles and foreign countries.

That the Dean of Ely be requested to accept the office of a trustee of the Association, in the room of F. Bally, Esq. deceased.

For the reduction of stars in the *Histoire Celeste*, and the *Cœlum australe stelliferum*. Sir John Herschel, the astronomer royal, and Lieut. Stratford, R.N.

For investigations on the action of different bodies on the spectrum. Sir D. Brewster.

That Col. Sabine's paper, on the meteorology of Toronto, be published entire among the reports.

For a report on ozone, by Professor Schonbein.

For researches on the silicification of soft minerals, by Professor Kuhlman of Lille.

That Dr. Forchhammer's paper on metamorphic phenomena in the rocks of Scandinavia, be printed entire among the reports.

That Mr. West be requested to extend his analysis of mineral waters, and report the results.

For a report on the cirripeda, by H. Goodsir, Esq.

For a report on the British annelida, by G. J. Johnston M.D.

For experiments on the hydrodynamical phenomena of the reservoir and fountain at Chatsworth, by —. Paxton, Esq., J. Taylor, jun., Esq., J. S. Russell, Esq., and E. Hodgkinson, Esq.

For the continuation of experiments on the strength of materials, by E. Hodgkinson, Esq.; and on the internal constitution of metals, by W. Fairbairn, Esq.

For report on the fall of rain, and the collecting and disposing of it for engineering purposes. John Bateman, Esq.

For the discontinuance of meteorological observations, under the direction of the Association, except in the cases where the observations can be continued gratuitously.

That the Council be authorised to invite to the meeting in Cambridge, in 1845, the men of science in foreign countries who have distinguished themselves by attention to magnetical science, with a view to a conference regarding the propriety of continuing the magnetic observatories for three years, or a longer period, and the best mode of continuing them.

That it be referred to the Council to consider of the propriety of modifying the title and regulations of Section E, so that it may include a larger range of subjects.

At the evening meeting on Thursday, the Earl of Rosse resigned the chair to the Dean of Ely, in a simple, eloquent, and impressive address, in which his lordship spoke of the advance of the Association from its first weak and tottering state in York to its subsequent strength and power, ever aiming at the moral and intellectual improvement of mankind. He particularly eulogised mathematical science; and, in conclusion, expressed his satisfaction in giving up the chair to so eminently gifted a successor.

The Dean of Ely, being installed, also addressed the meeting; and highly eulogised Lord Rosse for the manner in which he had presided at Cork, and for his immense labours in the promotion of astronomical science. He described Herschel's immortal services, and anticipated like mighty discoveries from the noble earl, who had most kindly acceded to the wish of the Council, and consented to explain his telescope, its construction, mode of use, and results, as far as it had been tried, to the Association. The dean then complimented Mr. Vernon Harcourt and Sir David Brewster as the founders of the Association thirteen years ago in York, and other individuals who had since distinguished themselves as its active and leading members. A cursory review of their principal proceedings was taken, to justify his praise of the marked effects they had produced in the philosophy and improvement of the age; and he alluded with enthusiasm to the wide and promising field still before them to cultivate.

After a few words from Earl Fitzwilliam and the Marquis of Northampton, the meeting separated.

The whole number of members enrolled at York amounts as nearly as possible to 700.

The meeting for next year is appointed at Cambridge, where a hearty and fraternal reception is promised; and, judging from our last delightful sojourn there, will no doubt be fully realised. Sir John Herschel, President; and Lord Hardwicke — the Bishop of Norwich — Dr. Graham, of Christ's College—Dr. Ainslie, of Pembroke College—Prof. Airy, astronomer royal—and Prof. Sedgwick, Vice-Presidents; Mr. Hopkins and Prof. Ansted, local Secretaries; and Mr. Babbington, local Treasurer.

The time fixed is from Thursday the 19th, to Wednesday the 25th of June; and a very important congress of foreign philosophers is expected.

Oxford has intimated its desire to have a second meeting of the Association there; and Bath, Norwich, and Southampton, have also expressed a hope that they may be visited as early as possible.

We have in this No. inserted three of the most prominently useful and scientific papers, brought forward within the first two days of the meeting, namely, Mr. Porter's statement of the mining industry of France, Professor Ansted's views for the improvement and protection of the mines of England, and Col. Sabine's meteorological report and comparison, which the Association have considered to be of so much importance as to direct its being published entire in their Transactions. This report we will follow with the other two essential communications connected with the same subject, by Sir J. Herschel and Mr. Snow Harris.

On Wednesday, Prof. E. Forbes broached a new analytical system on the analogous formation of plants and animals (zoophytes), which has created a great sensation, and been hailed by the best authorities as an epoch in the science of natural history. Of this we shall also give an accurate account.

THURSDAY.

SECTION C.—(*Geology and Physical Geography.*)

Professor Ansted on the means by which the preservation of mining records may be best secured.

This is the paper which we characterised last week as "opening a subject of very great importance," nearly affecting, indeed, all the vast mining interests of the British empire. Viewing it in this light, we deem it right to insert the entire communication:—

The subject of mining records has been already brought before the notice of the British Association, and at the meeting held at Newcastle in 1838, Mr. Sopwith submitted a paper, entitled "Suggestions on the practicability and importance of preserving national mining records;" the result of which was the appointment of a committee to draw up a memorial, and to communicate with Government; and subsequently the adoption of the method then recommended, and the establishment of the office of mining records attached to the museum of Economic Geology. It is not unlikely that a considerable number of important documents might be accumulated in the course of time in this office; but it is believed that such

a probability is quite inadequate to meet existing circumstances, and that some regulations ought to be enforced by authority of parliament, so that the underground operations now in progress should be recorded according to some general plan, and the knowledge of their operations handed down in such a form as to be available in future years. In this way only can future adventurers learn what portion of a mining district is actually worked out, where dangers may be anticipated by coming in the way of old excavations, and what prospect there is of success in the prosecution of works left unfinished. The want of such information is not only greatly injurious to mining property, by leaving open a doubt with regard to matters so important, but in many cases it is the cause of serious danger to human life where the wastes or worked-out spaces left in mines have become the receptacle of great accumulations of water, or loaded with the noxious gases that exude from the mineral produce.

The object of this communication is to direct attention to the extent to which the mining interest of England would be promoted by the establishment of a general system of mining records; to shew that parliamentary interference is imperatively called for, if any satisfactory result is to be attained; and also that the efforts of the British Association are likely to be successful if the proper means are taken, whether by suggestions to government as to the most advantageous method of proceeding in, or by pressing on public attention the real importance of the subject, and inducing the government to set on foot the necessary inquiries.

The benefits to be expected from the possession of a system of mining records will be best understood if considered—first, with reference to the miner directly, who is thus enabled to learn how he may avoid danger; and then in the application of geological facts and speculations to mining, which is chiefly difficult and doubtful because the observations on record are, in comparison with what they might be, so few, so imperfect, and so unsatisfactory. The phenomena relative to the appearance, direction, and condition of mineral veins have, indeed, been almost totally neglected till within a few years in England; and while this has been the case in our own country, in Germany, on the other hand, such matters have been recorded in a systematic form even from the close of the sixteenth century.

It is undoubtedly the case, that the application of geology to mining has been hitherto so unsatisfactory and so little to be depended on, because there has ever been a want of accurate and minute information concerning phenomena which have been repeatedly noticed and forgotten, and many of which can never be recovered; while at this day a very large proportion of mines are so worked that no useful information can be obtained from them unless every thing as it occurs is carefully noted down and faithfully recorded.

But it will be asked, perhaps, to what extent these records are required, and how far they are capable of being obtained from those persons who are usually entrusted with mining property? They are simply those observations which every one capable of managing and overlooking the workings of a mine ought to be familiar with, since without them the excavations cannot be safely carried on. It is not so much observations as records of observations that are required; and the facts themselves should be known either to the proprietor or overlooker of every mine, that he may be aware how much valuable mineral produce is abstracted from the bowels of the earth, and the position of that which is left. The information thus obtained is, however, scarcely less interesting to the geologist who wishes to make himself acquainted with the conditions under which the mineral produce exists.

I may appeal to those amongst the members of the Association who best understand the subject, whether even the work of the ordnance geological survey can be considered complete, or whether the full benefit can be reaped from that important and national work, unless some system of recording the underground phenomena observed in mining be very soon adopted. It seems clear, that whatever is to be done by the geologist for the benefit of the miner must depend, not doubtfully and indirectly, but evidently and immediately, on the number and nature of the phenomena recorded, and on the accuracy and completeness with which the records are kept. It is also evident that the greatest benefit will be derived from a systematic record of similar phenomena in various mining districts during those operations which can only be carried on by a large expenditure of capital and labour, and in the anticipation of a profitable return for the outlay; there is, therefore, every reason why these observations, which *must* be made, should also be recorded, were it only for the immediate interest of the mining proprietor.

With respect to mining operations now in progress, there are, indeed, many ways in which records, such as it is proposed to enforce, would be extremely useful. The drainage of one mine is not unfrequently received into other works in the vicinity at a somewhat lower level; and this is the case not only accidentally, but often (there is reason to suppose) wilfully; an unscrupulous and dishonest owner or mine-agent waiting till his more active neighbour has sunk to the deeper portions of a seam or vein, and then commencing his part of the work, allowing the water to drain into his neighbour's property. I have reason to know that this is not a hypothetical case, but is rather looked upon in some districts as a piece of ingenuity to be practised whenever occasion offers. Besides this, there is another reason why such records should be enforced as a protection against dishonest mine-owners, as it is not unusual in some parts of the country, where little capital is required in undertaking to work a mine, that men of no resources rent a property on speculation, paying a rent per acre of coal extracted, and then extend their underground excavations beyond the limits over which they possess a right. The coal thus dishonestly obtained is sometimes a very considerable quantity; and as the persons acting in this way do not allow their mine to be visited, or their working plans, if there are any, to be examined, there are no means by which the neighbouring proprietors can be certain whether they have been robbed or not, without applying to the Court of Chancery to enable them to investigate the case, or else sinking a shaft and working their own portion of the seam at an inconvenient time, or in an unprofitable manner. In either case the expense incurred is very considerable; and the thief, when discovered, is rarely in a condition to restore the value of the property stolen.

Besides this wilful interference with the property of others, the absence of well-made plans, and the ignorance of the persons employed, has in some cases been the cause of extensive trespass being committed, and very heavy expenses incurred in litigation before any arrangement could be effected. It must be evident that great care and accurate underground surveying is necessary to prevent the recurrence of such cases.

With respect to mining operations that may be hereafter undertaken, we are able to form some idea of the advantage of records, by considering the extent to which they are needed in works carried on now in every mining district. The being able to avoid excavations made by former miners, and upon mines worked out and neglected, is one of the most important of these advantages. Accidents arising from ignorance in this respect are serious and frequent, and are accompanied by such extensive loss of property, and even of human life, that every one acquainted with mining operations will at once recognise the great necessity there is of some measure by which such accidents may be prevented for the future. No fewer than thirteen mines on the river Tyne, in the immediate neighbourhood of Newcastle, have been either worked out or relinquished within the last fifty years; and of these no records are kept, notwithstanding that some years ago a serious accident took place owing to the irruption of water into the Heaton Colliery, the water having accumulated in some old workings which had been relinquished for seventy years. It is also a matter of no little economical importance, that in some cases, owing to the want of records, a coal-pit has been sunk, and other expensive operations carried on, upon a wrought-out seam of coals.

But besides the advantage of being able to avoid the danger and mischief arising from a too near approach to these old workings, the rapid improvements that are constantly taking place in machinery, and the discoveries, by means of which mineral produce, at one time useless, may at another be of some value, render it extremely desirable that the circumstances under which old works are abandoned should be in all cases clearly recorded. It is, however, certain that this will never be done by the persons about to relinquish the working of the mine, because they will not put themselves to expense for that which they, of course, suppose valueless; and it is only by some general legislative act that the result so desirable can be attained. I may, perhaps, be permitted to state here the practice in Saxon mines with regard to this matter, as an instance of what has been thought right and necessary in the country where the whole detail of mining operations has been carefully studied, and made the object of a legal code.

In Saxony, "when a mine is to be abandoned, an officer, called the 'superintendent of mines,' and others whose duty it is to inspect the mines from time to time throughout a district, and report on their condition, visit the works; detach portions of ore; note its condition and value; and mark down these observations on a ticket, which they attach to the specimen, and which it is their duty to preserve carefully. They register in a book kept for the purpose all the circumstances which have led to the abandonment of the mine; mentioning the magnitude of the vein; the hardness of the rock; the proportion of ore it contains; the depth of the workings; the nature, direction, and magnitude of the galleries, and the distance to which each has been carried." It need not be mentioned that an accurate map of the underground works on each level is also preserved; and such an account of the appearances of the surface, that the mine and each shaft can at any time be identified.

I beg now to submit a few of the reasons which render it not only expedient but absolutely necessary that the preservation of such

mining records as are of greatest importance should be provided for by a legislative act; and that for this purpose there should be a representation made to government on the part of the British Association, and a method pointed out, by which the object in view, that of enforcing the registration of mining operations, may be best accomplished.

The careless indifference of those who have only a temporary interest in mining property is one reason why such interference is necessary. Under ordinary circumstances of mines leased to adventurers, and paying a royalty to the land-owner, it is often thought quite needless that plans should be prepared of any parts of the work not actually in progress: and far from there being complete plans of the mine on each level, or at each seam, there are often only a few detached sketches carelessly and imperfectly made and not regularly continued. And although in the great mines of Cornwall, and in many detached properties, a far more complete system than this is followed, yet the absence of any general plan renders these less useful than they would otherwise be; and the want of knowledge of the intermediate works destroys also a great part of their value.

But the jealousy of small mining adventurers is a yet greater obstacle than their carelessness and indifference. There is always extreme difficulty in inducing such persons to recognise the advantage that they themselves would derive in knowing exactly the state and progress of their works at any time; and the difficulty is still greater when they fancy that their neighbours and rivals would also learn their movements.

I have already remarked upon the dishonest practices which the compulsory registration of mining records would greatly tend to prevent; but I may state here, that the possibility of such knowledge being taken advantage of in managing the drainage of a mine, has been mentioned to me as an objection which would have some weight amongst a certain class. I need hardly point out that the very expression of such a fear is a sufficient proof of the necessity of doing something, while it is at the same time an intimation of the kind of opposition that may be offered to the measure.

The want of an uniform system of recording the phenomena of mining in different parts of the country, is another reason why some well-digested outline of the kind of records required should be sketched out, capable of being filled up in detail in each district; and so planned that the habits, the degree of knowledge, and even the prejudices of the various persons interested in the mining property in the district, might be consulted in preparing the questions in detail. Unless, however, the supplying the information required was made compulsory, there can be no doubt that many individuals would decline to assist; and the system as a whole be imperfect, unsatisfactory, and little to be depended on.

The need of parliamentary interference is, however, felt, not only in ensuring the establishment of an uniform system recording the preceding and existing state of mines actually in work, but still more with reference to those about to be abandoned; for, as I have already remarked, the circumstances under which mines go out of work must, in almost every case, be precisely those rendering it unlikely that the persons interested would willingly put themselves to any trouble or expense about the matter. They have ceased to expect any favourable result from further workings; and they are rarely likely to make any exertion, unless they are required to do so by some legislative enactment.

But if it is thus important that parliament should interfere for the purpose of enforcing the preservation of a series of mining operations, it appears to be the duty of the British Association to consider in what way the matter may be best recommended to the notice of government, and to recommend it with the most earnest and pressing representations. For it cannot be expected that, if introduced without the authority of a representation of this kind, and without presenting a well-arranged plan of operations likely to meet with the general assent of mining proprietors, a law, one object of which would be to impose restrictions on the management of a particular kind of property, will be received with the degree of attention which it certainly merits. It appears, indeed, to be the duty of the Association, no less than its highest privilege, to express itself thus as the organ and representative of science in England. By it scientific men can most powerfully, most immediately, and most usefully assist the government, and express their opinion concerning the importance of the investigations they are engaged upon—their bearing on the practical pursuits and employments of active life. As, therefore, no formal applications can be made so effectually as those recommended at the annual meetings of the Association, and since the applications thus made have met with almost invariable success, there is every reason why this subject of mining records—more practically important than any that has yet come before the notice of the Geological Section of the Association—should be most carefully considered and advanced in every possible way.

But there are yet additional reasons why the subject should come before the notice of government through the British Association. There has not yet been projected any well-advised plan of the nature and extent of the records required, or of the machinery by which the information most needed could be at first collected, and afterwards arranged and rendered available. It is probable that this might be done, at least to a very considerable extent, by a committee of members of the Association putting themselves into communication with the principal mining proprietors who take an interest in the subject. It appears from the result of a public meeting that has lately been held in the north of England, that every assistance would be given by the coal-owners and coal-viewers in that district; and there can be little doubt of much valuable information being procurable from many persons of experience and local knowledge in Cornwall, and in the other mining districts of England.

The first step towards the attainment of mining records has been already made at the instance of the Association; and an office is provided for the reception of these documents, forming a most important adjunct to the Museum of Economic Geology. It is most desirable that this important museum and its office should be better known and more extensively useful; and it may safely be said, that there is no one department of practical geology so important as the subject I am now advocating; for there is none on which so many important interests depend, or of the efficient attainment of which geology, both as a science and as bearing on practical questions, is more likely to be useful. I would therefore suggest, that a committee should be formed to communicate with government on the matter.

Mr. Sopwith, of Newcastle, who had during twenty years considered this question, Mr. J. Taylor, Sir H. De la Beche, the Marquis of Northampton, and Mr. Warburton, delivered their sentiments on this question. The members of the greatest practical experience fully corroborated Prof. Ansted's statements as to the ignorance which prevailed on the subject of mining operations, the innumerable accidents to which it gave rise, and the injuries done to many mine-owners by the unscrupulous acts of others. Sir H. De la Beche seemed to think that government had done all it could do to promote the objects advocated in the paper; and noticed the Museum of Economic Geology as an establishment which, if furnished by those who possessed mining intelligence, would readily meet all inquiries from other quarters. The Marquis of Northampton observed, that the recommendation could not be constitutionally taken up by the Section; but had no doubt it would receive the best attention of the Committee of Recommendations [general applause]. It was in every way a most important subject; and to protect the honest from the dishonest workers of mines, was the obvious duty of the government and legislature. Mr. Warburton agreed with the preceding speakers, but thought there might be some difficulty in obtaining accurate information. He illustrated this doubt by a humorous anecdote of evidence given before a committee of the House of Commons on a mining inquiry. The *philosophers* examined estimated the quantum of the coal-fields as sufficient for the consumption of 300 years; but the *coal-proprietors* held that there was enough for 1500 years. But the most amusing part of the business was, that when, on a later occasion, the same coal-proprietors were called upon to calculate the value of their property, in order that it should be charged for an ecclesiastical purpose, they unanimously agreed that it was not worth more than from 40 to 50 years' purchase!! As an abstract proposition, nothing could be more proper than the motion now introduced; and he hoped the difficulties which beset its being carried into effect could be surmounted.

SECTION F.—(*Statistics.*)

Mr. G. R. Porter on the mining industry of France.

Considering Mr. Porter's paper, especially as following up his excellent information already well known to the public, on the manufacturing industry of our neighbours across the Channel, as one of high national value (see our last *Lit. Gaz.* p. 619), we have also selected it for one of the few we consider it expedient to adopt without abridgment.

At the present time, when the most strenuous exertions are being made for the advancement of the material interests of this country in all their leading branches, and while those exertions are being attended by the measure of success which usually accompanies industry directed by intelligence, it must be interesting to know whether other nations are engaged in the same pursuits, and in what degree success may have crowned their efforts also.

Our mining industry, if not the greatest, is, without doubt, one of the greatest sources of our wealth. It has been one of the chief means whereby we have been enabled to take and to maintain the station which we occupy among the nations of Europe. The knowledge of this fact has naturally led to this consequence, that other countries have striven to rival us so far as the means for such rivalry have been within their reach, and that their governments have shewn a desire to foster and encourage pursuits from which they have expected to draw results commensurate with those which have thus excited their emulation. In no country have

greater efforts to this end been made than in France. Whether the means whereby success has been sought have been the most judicious that could have been adopted on the part of the legislature of that country is, however, very questionable.

The latest of the official documents that has been hitherto compiled having reference to the mining operations of France relates to the year 1841, being five years in advance of the returns brought forward at the meeting of the Section of the British Association in Newcastle. It will be interesting to compare the result obtained at the end of that interval of time, as an element of importance towards forming a judgment concerning the future progress of the mining industry of France. With this view the facts will be presented as nearly as possible in the form given to the inquiry in 1838.

The system of government-inspection of the mines in France was begun in 1832, during which year, as well as in 1836 and 1841, the value of the principal mineral productions raised in that country was as follows:

	1832.	1836.
Coal lignite and anthracite	16,079,670f.	26,607,071f.
Iron and steel	87,312,994	124,384,616
Silver and lead	856,673	821,534
Antimony	71,233	305,032
Copper	247,680	196,924
"	105,150	152,671
Alum and sulphate of iron	1,007,595	1,760,607
	105,750,995	154,228,455
Or in sterling money	4,230,040*l.*	6,169,138*l.*

	1841.
Coal lignite and anthracite	33,159,044f.
Iron and steel	141,789,560
Silver and lead	774,033
Antimony	155,251
Copper	278,676
"	147,483
Alum and sulphate of iron	2,052,043
	178,356,090
Or in sterling money	7,134,243*l.*

The actual increase of value realised from the production of these mineral substances will be seen to have been—

	Per annum.
During 4 years, 1832 to 1836, 48,477,460f., or	12,119,365f.
" 5 " 1836 to 1841, 24,127,635f., or	4,825,527
" 9 " 1832 to 1841, 72,605,095f., or	8,067,233

The per-centage increase in 1836 over 1832 was 45·84, or 11·46 per annum.
The per-centage increase in 1841 over 1836 was 15·64, or 3·12 per annum.
And for the whole 9 years: 1841 over 1832 was 68·65, or 7·63 per annum.

Coal.—The number of coal-fields which were open in 1836 was 46. This number was in 1841 increased to 62, of which number 9 furnished anthracite only and 14 lignite only; the other 39 furnished bituminous coal, 5 among them yielding anthracite also. These coal-fields are situated in 41 of the 68 departments into which France is divided. [The most and least productive may be enough for our quotation, though Mr. Porter gives them all.]

	Tons.
Loire	1,193,110
Nord	893,325
Saone and Loire	316,426
Gard	274,234
Côte d'Or	258
Dordogne	133
Ain	96

Two departments, Moselle and Lot, which each produced a small quantity of coal in 1836, had ceased to do so in 1841. The quantity raised in the former year was 3016 tons in Moselle, and 60 tons in Lot. On the other hand, the following departments, 13 in number, from which coal was not obtained in 1836, have since been made to yield that mineral—some of them in comparatively considerable quantity: Bouches du Rhone, 64,777 tons; Isère, 37,207 tons; and ten others down to Ain, 96 tons; and making a total of 160,769 tons. This quantity may not appear very considerable to those who are accustomed to the magnitude of mining operations in this country; but the importance of the beginning thus made will not be undervalued, if we consider that of the 30 coal-producing departments in 1836 the aggregate quantity yielded by 22 or 11-15ths of the whole number was less in that year than the quantity thus newly produced in the above 13 departments in 1841, and that 20 of those 22 departments in which coal-mines were worked in that year then produced very nearly double the quantity they had yielded in 1836.

The total quantity of coal, anthracite, and lignite, raised in 1841 amounted to 3,410,200 tons. In 1814 the produce of all the coal-mines in France was only 665,610 tons. This quantity was about doubled in 1826, the produce in that year having been 1,301,045 tons. In the following ten years this increased quantity was nearly doubled, the quantity raised in 1836 having been 2,544,835 tons. The increase during the last five years to which the statements reach has therefore been 34 per cent; but if computed upon the produce of 1814, the difference between 1836 and 1841 amounts to 130 per cent. The increase during the whole period of 27 years has been 412 per cent. The quantities raised in each of the years above named, and the increase obtained between each period, have been as follows:

	Quantity raised. Tons.	Increase since 1814. Tons.	Increase since 1826. Tons.	Increase since 1841. Tons.
1814	665,610			
1826	1,301,045	635,435		
1836	2,544,835	1,879,225	1,243,790	
1841	3,410,200	2,744,590	2,109,155	865,365

The number of coal-mines in work during 1841 was 256, shewing an average production of 13,321 tons per mine. The average production in 1836 was only 9863 tons.

The number of workmen employed in raising various kinds of coal in France in 1841 was 29,320, of whom 22,595 worked in the mines. The average quantity raised to each person employed was 116 tons, being the same quantity as in 1836, when the number of persons employed was 21,913.

The value assigned in the official documents to the produce makes the cost of each ton amount in 1836 to 11*s.* 3¼*d.* per ton, and in 1841 to only 7*s.* 9¼*d.*; the average value raised by each workman, which in 1836 amounted to 65*l.* 9*s.* 10*d.* had therefore fallen in 1841 to 45*l.* 1*s.* 5*d.*, or nearly one third. There are no means afforded for ascertaining in what proportions this saving has resulted from economy in the working, or from diminished wages or profits; in whatever manner the saving may have arisen, it is however an important fact, that the cost of production has in so short a space of time as five years been reduced to so great an extent as 30 per cent, without preventing the continued extension of this branch of employment.

We have no means whereby to ascertain correctly the quantity of coal raised in this country; but there are good grounds for believing that it is at least ten times the quantity that was raised in France in 1841. From parliamentary documents we know that

	Tons.
The quantity shipped coastways from one port to another in Great Britain and Ireland in 1841 was	7,649,899
The quantity exported to British colonies and foreign countries in the same year was	1,848,294
Together	9,498,193

But we know that for all great manufacturing purposes, smelting, casting, and forging iron, and other metals, for glass-making, in the potteries, in our cotton, woollen, flax, and silk factories, coal is used which is produced on the spot, and therefore is not included in any accounts of shipments. It has been estimated that in our iron-works alone the consumption amounts to 6,877,000 yearly; and it will not be thought unreasonable to assume that a like quantity is used in all the other great branches of manufacture which are carried on among the various coal-fields. It was ascertained by a deputation from the body of coal-owners of Durham and Northumberland, who were sent through the kingdom for the purpose of making the inquiry in 1816, that the quantity of coals distributed by canals and other modes of inland communication from the coal-fields of Yorkshire, Derbyshire, Nottinghamshire, Leicestershire, Warwickshire, and Staffordshire, to the east, west, and south of the kingdom, amounted to 10,808,046 tons; and there can be no doubt that at this time the quantity thus distributed must be much greater. These quantities amount to more than 35,000,000 of tons; and as the number of persons of all ages and both sexes employed in coal-mines in Great Britain in 1841 was found to be 118,233, it follows that the average quantity raised by each person is 263 tons, or about 120 per cent more than the average quantity raised by each person from the coal-mines in France.

The use of coal in France is not limited to the supply obtained from the mines of that country. Considerable and constantly increasing quantities are yearly imported from Belgium, from the Rhenish provinces of Prussia and Bavaria, and from England. The quantity so imported in 1814 was 165,345 tons; in 1826 it had reached 505,180 tons; in 1836 it had further advanced to 999,452 tons; and in 1841 the quantity imported was 1,619,160 tons. Of this last-mentioned quantity, the importations were from the following places:

	Tons.
From Belgium	992,226
From the Rhenish provinces of Prussia and Bavaria	196,502
From England, Wales, and Scotland	429,950
From other places	482
Total	1,619,160

On the other hand, some small quantities of coal are exported from France, but these shipments have never reached 50,000 tons in one year. The quantities of this description of fuel, so important for all manufacturing processes and so indispensable for some, that remained for use in the kingdom in the years already cited were, in round numbers, as follows:

	Tons.		Tons.
In 1814	800,000	In 1836	3,517,000
In 1826	1,800,000	In 1841	4,980,000

The import-duties on coal were diminished in 1834 from 15f. per ton to 3f., 6f., and 10f. per ton, depending upon the district into which it is brought by sea, while the duty on importation by land was reduced from 3f. to 1f. and 1f. 50c., such reductions being from 33 to 80 per cent upon the former rates. The quantities imported have since this reduction increased to the extent of 130 per cent; but concurrently with this increase, the internal production has been augmented to the extent of 65 per cent.

Iron.—The increase which has taken place in this branch of mining industry since 1836 is not nearly so great as the increase that has attended the production of mineral fuel; for which result we may in great part account by the fact that the iron-trade in France has not been subjected to any diminution of fiscal protection, but continues to be hedged round by high and, as

regards many qualities of the metal, prohibitory duties.

There were in 1836 twelve districts in which the making of iron was prosecuted in France. Including both smelting works and works for making bar-iron, there were in those 12 districts 894 distinct establishments. In 1841 the number of distinct establishments was increased to 1023. There were smelting works in 59 different departments, and in 20 other departments the making of pig and bar iron from ore elsewhere produced was carried on; so that there were only 7 departments throughout France in which one of those two branches of the iron manufacture was not carried on: those 7 departments were—

1. Basses Alpes.
2. Haute Alpes.
3. Creuse.
4. Gers.
5. Haute Loire.
6. Losère.
7. Vendée.

In some departments the quantity of iron made was inconsiderable. In Cantal the value of metal produced was only 1280*l.*, or 54*l.* 4*s.*; and in each of 13 other departments the value in the year did not reach 5000*l.* One half in value of all the iron made in France in 1841 was produced in the following 9 departments, which are here placed in the order of their productiveness, viz.:

1. Haute Marne.
2. Moselle.
3. Côte d'Or.
4. Loire.
5. Nièvre.
6. Ardennes.
7. Cher.
8. Haute Saône.
9. Meuse.

Including with these nine departments which follow, placed also in the order of their productiveness, viz.:

1. Seine.
2. Doubs.
3. Gard.
4. Saone and Loire.
5. Arriege.
6. Vosges.
7. Nord.
8. Dordogne.
9. Indre.

it appears that $\frac{4}{5}$ in value of all the iron made in France is produced in 18 departments, and the remaining $\frac{1}{5}$ are distributed among 61 departments. The greatest value was produced in the department of Haute Marne, and amounted to 11,983,744*f.*, or 479,349*l.*, which sum was divided among 86 establishments, placed in 41 different localities, some of which establishments are said to have been in operation so early as the beginning of the seventeenth century.

The value of iron and steel made in the various departments of France, which amounted, according to the returns of the government inspectors, to 4,975,424*l.* in 1836, is stated by those officers to have amounted in 1841 to 5,671,582*l.*, shewing an increase in 5 years of barely 14 per cent. The value assigned to a given weight of the produce has, during the same time, been reduced at the rate of 8½ per cent.

[The 12 districts in which iron is produced we need not particularise, nor need we give the details of their grouping.]

The prices, so exorbitantly high when compared with the cost of production in England, must result in great part from the less efficient application of labour in France, and partly also from the higher cost of fuel in that country. Measuring the production of the two countries by quantity of ore converted into pig iron, it appears that in Great Britain we make four tons for each ton made in France, while the number of persons employed is positively greater in France than in England, viz.

In France	47,830
In Great Britain	42,418

giving as the average quantity of metal resulting from the labour of each person employed rather less than 8 tons in France and more than 35 tons in this country. But to estimate to its full extent the greater efficiency of this branch of labour with us, we must bear in mind the greater number of persons employed in France for the production and transport of the fuel used at the iron-works, and which, as we have seen, is 120 per cent greater than with us. If the cost of fuel at the iron-works of Great Britain were as great as at the iron-works of France, it would on a moderate computation add 50*s.* per ton to the cost of the iron produced in this country.

The value of the fuel consumed in the manufacture of iron in France in 1836 and 1841 was—

	1836.	1841.
Wood charcoal	1,643,826*l.*	1,706,712*l.*
Wood	13,040	41,027
Coke	96,972	177,237
Coal	285,235	254,367
Peat	694	301
	2,039,767*l.*	2,179,664*l.*

being 41 per cent on the value of metal made in 1836, and 38¼ per cent in 1841.

The average prices of the different kinds of fuel used in each of the above two years were—

		1836.	1841.
Wood charcoal	per ton	54*s.* 10*d.*	57*s.* 5*d.*
Coal	,,	18 5	14 7
Coke	,,	20 3	20 2
Wood	per stere	2 10	4 7

The continually increasing cost of wood in France should tend, in conjunction with the continually declining cost of coals, to alter the existing system of manufacture; but under any circumstances the iron-masters in that country must be placed at a disadvantage in competing with countries where the iron-stone is found on the spot with the fuel, and the flux needful for its reduction.

We have seen that the cost of coal at the places of production in France was in 1836 per ton, 11*s.* 3½*d.*, and in 1841, per ton, 7*s.* 9½*d.*; and it therefore appears that the expense of carriage from the collieries to the iron-works amounted on the average to 7*s.* 1½*d.* per ton in 1836, and to 6*s.* 9¾*d.* in 1841, or more than the entire cost of the fuel used by English iron-masters.

The quantity of iron made in France in each year, from 1837 to 1841, appears from the official documents to have been as follows:

	Pig iron. Tons.	Malleable iron. Tons.
1837	321,679	224,613
1838	347,776	224,195
1839	350,172	231,761
1840	347,773	237,379
1841	377,142	263,747

How inadequate must be the native production of this all-important metal, as here shewn, to supply the wants of an extensive and populous country like France! If the rules of common sense were allowed to regulate the conduct of nations in matters of this nature, we should assuredly see that every possible inducement were held out to make good the deficiency by importations from foreign countries. The French government has, on the contrary, chosen to throw the most serious obstacle in the way of such importations; and, under the pretext of stimulating the production at home, has loaded iron of foreign make with all but prohibitory duties. Pig iron is subject to a rate equal to 3*l.* 2*s.* 6*d.* per ton. Plates, bars, and rods, have to pay duties according to their dimensions, varying from 8*l.* 7*s.* 4*d.* to 16*l.* 14*s.* 9*d.* per ton; and such articles as are not prohibited, to which a higher process of manufacture has been applied,—for example, wire,—are charged with a duty equal to 26*l.* 15*s.* 8*d.* per ton. At these rates, the importations of iron into France are, as might be expected, small in quantity—not in any one year reaching to 50,000 tons. The payment of high duties upon even this small quantity is, however, a proof of the excessive prices which the consumers are forced to pay for all that they use—prices from 100 to 250 per cent greater than are paid in England; and the slow progress made by the iron-masters of France, in providing for the wants of the country, should convince the government that the method they have adopted for stimulating production by means of high protective duties is but ill adapted to that end. It would most probably be found, upon inquiry, that the iron-masters in that country are, in fact, but little interested in the question. By the price which they obtain for their iron, are they governed in the price which they can afford to pay for the wood-fuel which they use; or it may be more correct to say, that the proprietors of woods in the iron-districts exact from the iron-masters the highest price which the market value of their iron will enable them to give; and thus the protecting duty on iron is a benefit only to a proportion of the proprietors of woods, at the expense of the rest of the community.

The small quantity of iron imported from other countries into France is almost wholly in the first stage of manufacture. There are no means afforded in the official accounts of that country for ascertaining the proportionate quantities of various descriptions of the metal imported; but as the duty levied upon all kinds of iron averaged 3*l.* 11*s.* 9*d.* per ton, it is evident that nearly the whole importation must have consisted of pig iron. It is probable that the small importation of other kinds which are made are confined, or nearly so, to the produce of this country, from the greater cheapness of our market; and we know that the great bulk of our shipments to France are of pig iron. In 1842, out of 23,428 tons of all kinds of iron shipped by us to that country, 16,464 tons were pig iron; and in 1843 the proportion was still greater, having been 22,103 out of 29,626 tons, in both cases more than 70 per cent of the whole shipments.

A considerable relaxation of the French tariff, whereby the purchase of iron from other countries would be encouraged, would doubtless prove of benefit to those of us who are engaged in its production; while the benefit which France must derive, in various ways, from having so important a material in greater abundance, would, by advancing the general wealth of the country, make France a more desirable customer: but, in the mean time, the course which the French government pursues on this and other points of commercial policy, is by no means an unmixed evil to us, through the obstacles which are thereby raised by itself against the manufactures of that country in their competition with us in third markets.

The production of metals other than iron is so inconsiderable as to be a matter of no national importance in France; and it does not at all interest us, except as it points out that country as qualified to be a good customer for a portion of our superabundance. The following figures will shew that, small as was the production of those metals in 1836, it is now even less:—

	1836. Quantity.	1836. Value.	1841. Quantity.	1841. Value.
Lead	tons 713	16,200*l.*	638	12,559*l.*
Silver	oz. 81,153	16,650	73,680	18,340
Antimony	tons 411	12,131	112	6,198
Copper	,, 103	7,877	100	11,147
Manganese	,, 1,667	6,106	4,978	5,899

These quantities are, of course, quite inadequate for the supply of the kingdom; and the importation for consumption into France in 1841 and 1842 was as follows:

	1841. Tons.	1842. Tons.
Lead	17,375	18,671
Copper	9,770	10,814
Manganese	1,341	1,295

The greater part of the lead was obtained from Spain; but England supplied of that metal 2519 tons in 1841, and 5027 tons in 1842. The copper was principally imported from England, viz. 6830 tons in 1841, and 8300 tons in 1842, a great part being the produce of foreign ore smelted in England.

The declared value of British metals and of coals exported to France in 1842 was as follows:—

Iron and steel	105,172*l.*
Hardware and cutlery	90,035
Copper	682,833
Lead	91,687
Tin	79,223
	1,048,950*l.*
Coals	173,278
	1,222,228*l.*

The quantities of iron and steel exported in that year and in 1843 to France were—

	1842. Tons.	cwts.	qrs.	lbs.	1843. Tons.	cwts.	qrs.	lbs.
Bars	4,566	1	3	26	4,237	9	2	3
Bolt and rod	174	17	0	0	295	2	2	0
Pigs	16,464	0	0	0	22,103	0	0	0
Cast	52	16	0	9	324	0	3	14
Wire	39	0	1	8	39	0	0	22
Anchors, &c.	289	8	0	4	444	17	0	23
Hoops	506	14	2	0	443	11	1	16
Nails	1	1	3	7	3	11	1	16
Other kinds	834	13	2	9	1,153	7	2	3
Old for re-manufacture	172	0	0	0	341	0	0	0
Steel	327	7	1	9	241	0	2	25
	23,428	0	2	10	29,626	1	1	10

FRIDAY.

SECTION A.—(*Mathematics and Physics.*)

Colonel Sabine on the meteorology of Toronto in Canada, &c.

The importance that the grand and extensive co-operation for magnetical and meteorological observations is assuming, and the coming conference at Cambridge, has induced us to pay particular attention to the progress of the investigation, particularly in regard to the reports of Col. Sabine on the meteorology of Toronto in Canada, and its comparison with that of Prague in Bohemia; Mr. Snow Harris's report of meteorological observations at Plymouth; and Sir John Herschel's report of the committee of magnetical and meteorological co-operation. We intend to give these valuable communications at some length. Subjoined is the first of them—the comparison, so ably discussed by Col. Sabine.

To render the communication more interesting and more useful, Col. Sabine had compared the meteorological results obtained at Toronto with those obtained by M. Kriel at Prague in Bohemia. Often more is gained by such comparisons, by points of resemblance and points of difference, analogies and contrasts, than by simple direct investigation.

Prague, like Toronto, is situated at a considerable distance from the ocean (between 300 and 400 miles), in the interior of a great continent, the latitude and variation, moreover, not being very dissimilar. The agreement which will be shewn in the leading features of their meteorology manifests that these features belong to a locality so circumstanced, whether the continent be Europe or America; whilst the minor differences point to climatological distinctions of a secondary order, important, however, to discuss, from their bearing on the health and occupations of mankind, as well as of more purely scientific respects.

One leading difference always found between places situated in Europe and America is, that the climate of the former is of higher mean temperature than that of the latter; in other words, that the isothermal lines descend into a lower latitude in America than they do in Europe. The amount of difference in this respect between Prague and Toronto, corrected for elevation, is, that Prague is 5° 1′ warmer than Toronto, although its latitude is 6° 26′ higher.

Col. Sabine proceeded to the distribution of this mean temperature into the several hours of the day and months of the year—the first forming the *diurnal* oscillation of the temperature, or that oscillation which has a day for its period; and the second, the annual oscillation, or that which has a year for its period. The diurnal oscillation is the well-known consequence of the earth's rotation on its axis. It is a single progression, having one ascending and one descending branch, the turning points being a maximum early in the afternoon, and a minimum about sunrise. From the diagram exhibited, containing the results of about 7440 observations, its was obvious that the climate at Toronto is proportionally warmer during the day, and colder during the night, than at Prague. Toronto being in a lower latitude, and therefore nearer the sun, the sun's influence is proportionally greater during the hours of the day; but in the absence of the sun, the powerful causes which, in spite of the difference of latitude, depress the isothermal lines, shew their unchecked influence in the proportionally lower temperature of the night. So strong, indeed, are these causes, that at no one hour of the twenty-four does the absolute temperature at Toronto rise to an equality with that at Prague. The nights being proportionally colder, and the days warmer, than at Prague, the mean daily range of the thermometer is greater, being 9° 9′ at Prague, and 11° 35′ at Toronto.

Annual oscillation-temperature.—The annual oscillation is the consequence of the earth's annual motion in its orbit, occasioning the order and succession of the seasons, and a progression of temperature from a minimum in the midwinter to a maximum in the midsummer. This also is a single progression, having but one ascending and one descending branch. The diagram exhibited a general agreement between Prague and Toronto, with minor differences. The spring months are all proportionally colder, and the summer months hotter, at Toronto than at Prague. There is also one remarkable difference, in January, which is proportionally a colder month by above 4° at Prague than at Toronto; and from the magnitude of the amount, it wears the aspect of permanent climatological difference. It is in this month, and usually in the first week of January, that the wind from the E. and N.E. prevails in Europe, bringing with it the severest winter cold. This feature has not a parallel in North America, where the cold of winter is more equally distributed. It is a curious result from this excess of cold in Europe in January, that notwithstanding the greater proportional warmth in summer, and cold in spring, at Toronto, the extreme difference, or that between the coldest and warmest month of the year, is absolutely greater at Prague than at Toronto, being 41° 2′ at Prague, and 39° 5′ at Toronto. It is a consequence also of the minor differences, that a temperature equal to the mean temperature of the year occurs later in spring, and earlier in winter, at Toronto than at Prague; and the temperature is higher than the mean of the year during seven months at Prague, whilst at Toronto it is only so during five months.

The general character, also, of the mean range of the thermometer during three years is that of very close resemblance—the minor differences also stand out prominently. The greatest variation to which the temperature is subject at Toronto in March and April is very obvious, as also the very equable character of the month of November at Prague. The mean monthly range is 43° 9′ at Toronto, and 39° 7′ at Prague; a considerable amount of difference, and which marks the greater general vicissitude of the climate of Toronto; still it is deserving of notice that Prague is occasionally liable to fully as great, and even greater, extremes of temperature than Toronto; and it is also curious to remark how very nearly the stations approach each other in the extreme amount of their thermometrical range. July and August are the only months in which, during the three years, the observations never shew a temperature of the air so low as the freezing point. At Prague there are five months, viz., from May to September, inclusive, in which, during the three years, the temperature was never observed so low as 32° at any one of the observation-hours.

Aqueous vapour.—The elastic force or tension of the aqueous vapour contained in the atmosphere, and the degree of humidity produced by it, together with their diurnal and annual oscillation, were the subject of another diagram. The capacity of the air to contain moisture being measured by its temperature, it was to be expected that an intimate connexion and dependence would be found to exist between the annual and diurnal oscillations of the vapour and of the temperature. This connexion is exhibited by the observations at Toronto. The degree of humidity at the several observation-hours shews, as in the case of the temperature, a single progression of one ascending and one descending branch, having its turning points the same as those of temperature; namely, a maximum at the coldest, and a minimum at the hottest, hours of the day; the progression is of course inverse, but is in harmony with that of the temperature. The accordance of the two years' observations is remarkably satisfactory; they unite in shewing that in the average state of the atmosphere at Toronto the air is charged with 78 parts in 100 of the vapour required for its saturation. The mean tension of the vapour accords with the march of the temperature quite as strikingly; one ascending, one descending branch; the turning points in obvious dependence; and the march harmonious (in this case it is direct, as it was inverse in the case of the humidity). This direct evidence of connexion and dependence is the more deserving of notice because in many climates this connexion, though it always exists, is partly obscured by other less direct influences of the temperature. Thus at Trevandrum, where the zeal of an indefatigable associate, Mr. Caldicott, has already accumulated, reduced, and transmitted to England five years of hourly observations with the wet and dry thermometer, the maximum and minimum of the tension are found to occur within three hours of each other, the minimum coinciding with the coldest hour, viz. 6 A.M., but the maximum occurring at 9 in the forenoon. This is, doubtless, a consequence of the sea-breeze, which springs up as the sun gains power, and as the earth, heated by its rays, rarefies the air in contact with it, and causes the in-pouring of the denser air from over the surface of the ocean. The sea-breeze brings an influx of fresh air, which, in its turn, is rarefied and ascends; but with it comes a quantity of vapour which does not participate in this process, but by its accumulation causes

an immediate rapid rise in the tension of the vapour, making its maximum to occur at a very early hour. The few facts which are yet known regarding the diurnal march of the vapour in different parts of the globe, present many phenomena of this nature, inconsistent, at first sight, with the dependence of the progression of the vapour on that of the temperature. The knowledge of the phenomena of the vapour in different climates, and under different circumstances (such as insular, littoral, or continental situations, &c.), with the explanation of the various peculiarities which they present, will form hereafter a very interesting and beautiful chapter in the physical history of the globe. In regard to the mean monthly humidity, the months from March to July are dry below the average, and the remaining months more humid than the average. The drier months are those in which the temperature of the air is rising; the most humid, those in which it is either falling or nearly stationary. This is ever the case in the neighbourhood of extensive lakes, as at Toronto. March is the driest, and December the most humid, month in the year; and this is also known to be the case in Europe. In regard to the mean monthly tension, the connexion between the temperature and the vapour-pressure was most distinctly marked.

Atmospheric pressure.—The close accordance of the mean pressure on the mercurial column at the same hours in each of the two years exhibited in the diagram is a very satisfactory testimony of the confidence to which the barometrical observations (7440) are entitled. The diurnal oscillation of the aerial atmosphere, freed from the complication which its combinations with the vapour-pressure produces in the indications of the barometer, shews a close correspondence with the march of the temperature. The maximum pressure coincides with the coldest, the minimum with the warmest observation-hour. The progression takes place in the opposite or inverse sense to each other, but they are remarkably harmonious, and leave no doubt of a mutual connexion, and of the dependence either of the one or the other, or of both, on a common cause. The mean monthly pressure of the atmosphere is found to be diminished in the summer months, and augmented in the winter months. The turning points of the progression are a minimum in June, and a maximum in December. The general dependence on the march of the temperature is manifest; and it must remain for the additional evidence which will be produced by the observations of subsequent years, to determine whether the minor deviations from a perfectly harmonious march are mere accidental differences, which a wider observation-basis will cause to disappear, or whether they point to some other periodical influence (possibly of a less indirect nature) which is as yet unrecognised. The very few meteorological registers which have been maintained with proper care for several years together in Europe, are stated to afford very decided indications of the existence of other fluctuations besides the annual and diurnal oscillations, which apparently do not proceed from merely local causes, but recur regularly at stated periods of the year, and are recognisable simultaneously over widely extended spaces. How far the high pressure of the month of March at Toronto may be a phenomenon of this class, it may take some years to decide, one year's investigations being but a single experiment in investigations of this nature.

The diagram of the mean monthly height of the barometer exhibited how completely the annual march of the aerial atmosphere is masked in the barometer by its combination with the vapour-pressure, both being measured in one by the mercurial column. The increase of temperature which causes the aerial pressure to diminish, occasions the increase of the vapour, and *vice versa;* and so nearly are these two opposite effects of the one cause balanced at Toronto, that the height of the barometer remains very nearly the same in every month of the year, and shews no trace whatsoever of an annual period. The march of the vapour, as far as it has yet been determined, at Prague, does not present a curve agreeing quite so satisfactorily with that of the temperature as that deduced from Toronto. Whether this arises from disturbing influences in nature (such, possibly, as indirect influences of temperature), or whether it will disappear by longer continued observations, cannot be yet anticipated. What is still uncertain, however, at Prague is not of magnitude sufficient to obscure the dependence of the annual progression of the gaseous pressure on that of the temperature. The measure of agreement in this direction at the two stations may be considered as highly satisfactory. Mean quantities derived from a greater number of years will, in all probability, shew even a closer accordance.

A table of maximum, minimum, and range of the vapour-pressure, taken from the mean of two years, shewed that the mean fluctuation of the barometer at Toronto from fluctuations of the vapour alone, amounts, on an average of the year, to a monthly mean falling but little short of four-tenths of an inch; that in each of the summer months of June, July, August, and September, the fluctuation of the vapour-pressure is very little less in amount than the whole fluctuation of the barometer in the same months from all atmospheric changes united; that, in fact, if the aerial atmosphere were in perfect and undisturbed repose, the range of the barometric fluctuations in each of these four months would be little different from what it is at present. Winter is the season for the great fluctuations of the aerial atmosphere, summer for those of the vapour-pressure. The comparison of the barometer-range in the different months, at Toronto and Prague, exhibits a very satisfactory accordance, and shews how similar are the phenomena which present themselves in this respect over the two continents.

It is worthy of notice that the highest and lowest observations in the two years at Toronto occurred within a few days' interval of each other, being apparently parts of one great atmospheric wave. This is the case at Prague also. The comparison of the range of the vapour-pressure at Prague and Toronto exhibits only such differences as are reasonably ascribable to the greater range of the temperature at Toronto, and to the greater facility with which the air can acquire vapour at that station, from the great lakes in its vicinity.

We have undoubtedly, Colonel Sabine observed, made a considerable step in advance in meteorology, in substituting the consideration of the separate daily march of the vapour and of the aerial atmosphere, for the comparatively profitless study of the complex effect produced on the barometer by the operation of these two independent agencies. The labour has been by no means small which has been bestowed in the endeavour to generalise the diurnal phenomena of the barometer by the formation of empirical formulæ; it has been in many instances the labour of highly accomplished men. But we have the recent acknowledgment of a valued and distinguished member of our own body, who has himself consumed much time in this way, that it failed in conducting to a recognition of the causes of the phenomena; on the other hand, the moment we apply ourselves to the contemplation of the independent phenomena of the vapour and of the air, there is revealed to us a simple and beautiful dependence of each upon a single and perfectly intelligible cause, producing effects, in an inverse sense indeed, each as regards the other, but which we at once recognise as necessary consequences of the cause to which they are referred, and which, moreover, in their combination afford a full and perfect solution of the problem of the daily rise and fall of the barometric column. It would be unjust to the meteorologists of Germany if we were not gratefully to acknowledge in how great a degree this advance in the science is to be ascribed to their writings. Their meteorological researches have been pressed with an assiduity and devotion of labour which is beyond all praise. In the consideration which we (the members of the British Association) are likely soon to be called upon to exercise, whether any and what great combined endeavours are further desirable to be made for the advancement of meteorological science, we should, indeed, be inexcusable if we neglected to avail ourselves of the advice, and look with becoming respect to the opinions, of men who have spent years of untiring labour, and brought great attainments to bear, on a branch of science which has been comparatively less cultivated by ourselves. We can now easily perceive that an empirical formula, in which the diurnal oscillation of the barometer should be made to vary as a function of the latitude, could never universally represent the phenomena. The differences between an insular or littoral station, where a sea-breeze prevails, and causes the vapour-pressure to attain its maximum at nine in the forenoon, and an interior station in the same latitude, where the maximum is at two or three in the afternoon, cannot both be represented with fidelity by a formula in which the cause of their difference is not taken into the account. At stations where the maximum of vapour-pressure takes place at 9 A.M., and thenceforward descends until the afternoon (as at Trevandrum), the range of the diurnal oscillations of the barometer will be greater, *ceteris paribus*, than where, as at Toronto, the vapour-pressure progressively rises from sunrise to a maximum at two or three in the afternoon; the hours of maximum and minimum will also be somewhat modified.

The important problem of the equilibrium of the pressure of the aerial atmosphere resting on the spheroidal surface of the globe has lately begun to occupy the attention of physical philosophers in a degree which will probably tend, before many years, to its practical solution. In this labour the determinations of our co-operative observatories may perform an important part. Great care has been taken that the barometers of our colonial observatories shall speak precisely the same language as the standard barometer in the Royal Society's apartments; and steps are now taking to ensure a similar comparison of the barometers which, in different parts of the United States, are now observed simultaneously with Toronto by our American coadjutors, and which may hereafter, if that observatory should be continued, form a very valuable extensive basis of induction for the movements of the atmosphere over that great continent. Prague and Toronto furnish the materials for an interest-

ing comparison in their respective mean aerial pressures. This comparison was exhibited in a diagram. After the corrections have been applied for the reduction of the scale to a common latitude, and of the pressure itself to a common elevation, the residual difference in the pressure is thirty-three thousandths of an inch. This is within the amount of difference that might reasonably be supposed to exist in the respective barometers, however good, until they have been carefully and directly compared. The inference, therefore, at present must be, that no unaccounted difference of pressure exists, or, at least, next to none, at these two stations in Europe and America.

Col. Sabine believed that mathematicians have not yet decided whether we should expect an equality or a difference of aerial pressure, in its imaginable state of equilibrium and repose, on the surface of our spheroid: the opinions of practical men have lately tended to the belief that the state of equilibrium is not only disturbed by self-adjusting causes, which produce temporary displacements, but that there are causes in action that effect persistent derangements; and that, to use the words of Bessel, the atmospheric pressure becomes a function of the latitude and of the longitude of a station. This remark of Bessel's is founded chiefly on Erman's observations, which are entitled to the more regard as he has been careful to separate the vapour-pressure from the observed barometrical heights before he has ventured to draw conclusions from the latter.

The instance quoted by Prof. Forbes from Capt. King, who found the mean height of the barometer 29·462, in observations repeated five times a day in five consecutive months of summer, at Port Famine, does not appear to indicate what has been called an atmospheric valley. On the contrary, when due allowance is made for the probable vapour-pressure, the more just inference would be, that the aerial pressure at Port Famine is somewhat *greater* than its ordinary amount at the equator,—an inference which would be more consistent with other observations, which have indicated an aerial pressure at the equator somewhat lower than in the adjacent extra-tropical latitudes. "In these last remarks," Col. Sabine said, "I have ventured perhaps to travel somewhat further from my record than I should have been disposed to do, had I not had in view to call the attention of the Section to what it is in the power of our own country to accomplish, with its widely extended dominions, in the solution of this great problem of the pressure of the atmosphere, by the establishment of well-directed colonial observatories, each maintained only for a short duration. This present communication is an evidence how brief a time will furnish important results." One more point Col. Sabine brought under the notice of the Section, apologising (unnecessarily) for having trespassed so long on their time and patience; "but," he said, "it is a point so interesting in itself, and completes the evidence of the harmony in the fluctuations of the meteorological elements so beautifully, that I dare not omit it."

We have seen that the rarefaction of the air, as the temperature of the day increases, causes the column of the atmosphere over the place of observation to ascend, and overflow in the higher regions. We should be prepared, therefore, to expect an influx of air at the station proportioned to the rarefaction; in other words, a diurnal oscillation in the force of the wind (taken without reference to the direction from which it blows), which should have its maximum at the coldest hour of the day, and its minimum at the warmest, and its progression in harmony with the march of temperature, having one ascending and one descending branch. Such is the fact. The diagram exhibited the sum of the pressures, expressed in avoirdupois on a square foot of surface, at each of the observation-hours in 1841, and the same in 1842. The wind is proverbially uncertain, and our means of measuring its pressure are more imperfect than we could desire; but these numbers afford an ample evidence that there is a diurnal oscillation in the force of the wind, and furnish a curve which, when compared, is found to correspond with the curve of the temperature. This fact, observed at Birmingham by Mr. Osler, has been already brought under the notice of the Association at a former meeting. The diurnal march of the aerial atmosphere furnishes the link by which the connexion between the temperature and the force of the wind is explained; and their relation to each other, as cause and effect, is now placed before us in an intelligible form.

An inference of much practical utility to general observers may be drawn from meteorological observations, made with the frequency which can only be expected at those observatories where a sufficient establishment is maintained for the express purpose of observation. We may find that comparatively a very few observations in each day, at hours not inconvenient in ordinary life, may furnish a very close approximation to the complete annual and diurnal march of the atmospherical phenomena. Thus, from the complete record at Toronto, we find that the mean values of the temperature, of the vapour-tension, and of the humidity of the pressure of the gaseous atmosphere, and of the whole atmospheric pressure, may all be obtained, with a very near approximation, by a single observation at 8 P.M. (mean time), provided the observation be made with tolerable precision with regard to the hour. By combining with this an observation about sunrise, and another between two and four in the afternoon, the maximum and minimum of the temperature, of the aqueous and gaseous pressure, and of the humidity, may also be obtained.

These hours are by no means inconvenient for persons whose avocations permit them to keep a register at all, and appear in every way preferable to a selection which makes three o'clock in the morning one of the observation-hours,—which hour is perhaps the most generally inconvenient hour for that purpose of the whole twenty-four. The hours here suggested must not, however, be understood to be of universal application: they are not so thoroughly suitable, for example, at stations where, as at Trevandrum, the vapour-pressure attains a maximum in the forenoon.

REVIEWS OF NEW BOOKS.

Western Barbary: its Wild Tribes and Savage Animals. By J. H. Drummond Hay, Esq. Pp. 106. London, J. Murray.

THOUGH Mogadore is settled for the present, and the town of that name and Tangier have been bombarded in order to bring the emperor to reason,

(deliriunt reges, plectuntur Achivi,)

this publication, as a number of Mr. Murray's Colonial Library, will be read with more interest than it was when originally published or at any period since till the recent fray. For the task of giving us a lively picture of the country, the author was admirably prepared by a long residence and previous intercourse with the natives in a greater degree of freedom than has often, if ever, before been the lot of a European. He was well acquainted with their customs and feelings, could dress in their manner, and talk with them according to their prejudices,—of which the strongest is a perfect contempt and hatred of Christian dogs, whether French, English, or any other nation. Under pretence of, or indeed really, wanting to purchase an Arab horse of the noblest breed for her Majesty, Mr. Hay proceeded, August 15, 1839, on his journey from Tangier into the interior, *vid* Laraiche, accompanied by several Mussulman comrades, some of whom told stories, all of whom were superstitious and fond of wild field sports and accounts of them, and, in short, widely different in almost every thing from our ideas of civilised man. One of his friends was an hadj, a fellow about six feet two inches high, who wore a black gelab, which, we are told, is "a coarse woollen dress worn by the lower orders, and similar in form to the cowl of monks. The early Christians probably adopted this fashion from the people of the East, among whom also it is found." And with reference to the famous umbrella (or *parasol*, as the owner was only a prince?) which is now to adorn Paris as a trophy, we find the following phraseology as the introduction of a tale: "In the name of the most merciful God! —Know then, Nazarine, that some twenty years ago, when Moolai Soleeman was shaded by the imperial umbrella, there resided in the village of Bendeeban."

Our next notice relates to a matter which reminds us of the ancient offence of numbering the people. "The country folk are dressed in light woollen shirts, their arms and legs bare; a red cap or small turban covers the head; their shoes are religiously left at the margin of the thrashing floor, it being regarded as holy ground by all the children of the East. I remarked that they carefully avoid making any calculation of the produce of their harvest, and are offended if you question them as to their expectations, checking you by the grave reply—'As God may please.'" [They have no idea of calculations for a sliding scale.] But the narrative goes on. "There is a curious custom which seems to be a relic of their pagan masters, who made this and the adjoining regions of North Africa the main granary of their Latin empire. When the young corn has sprung up, which it does about the middle of February, the women of the villages make up the figure of a female, the size of a very large doll, which they dress in the gaudiest fashion they can contrive, covering it with ornaments to which all in the village contribute something; and they give it a tall peaked head-dress. This image they carry in procession round their fields, screaming and singing a peculiar ditty. The doll is borne by the foremost woman, who must yield it to any one who is quick enough to take the lead of her; which is the cause of much racing and squabbling. The men also have a similar custom, which they perform on horseback. They call the image *Mata*. These ceremonies are said by the people to bring good luck. Their efficacy ought to be great, for you frequently see crowds of men engaged in their performance, running and galloping recklessly over the young crops of wheat and barley. Such customs are directly opposed to the faith of Islam, and I never met with a Moor who could in any way enlighten me as to their origin. The Berber tribes, the most ancient race now remaining in these regions, to which they gave the name, are the only ones which retain this antique usage,

and it is viewed by the Arabs and dwellers in the town as a remnant of idolatry."

Our countryman could not meet with the perfect sort of horse* he sought; and, if we may judge of the points required to form a fine woman, we should suppose that it was equally difficult to fall in with that animal. For, "four things in a woman should be black—the hair, the eyebrows, the eyelashes, and the iris of the eyes: four should be white—the complexion, the white of the eyes, the teeth, and legs; four red—the tongue, the lips, the middle of the cheeks, and the gums: four long—the back, the fingers, the arms, and the legs: four round—the head, the neck, the arms, and the ankles: four wide—the forehead, the eyes, the bosom, and the hips: four delicate—the nose, the eyebrows, the lips, and fingers: four ample—the lower part of the back, the thighs, the calves of the legs, and the knees: four small—the ears, the breasts, the hands, and the feet."

One of the curious things among the natives is their notion that when they are hunting boars or lions, or other dangerous creatures, there is a kind of conversation carried on between them—an *animale parlante*, as it were—which, however, is very amusing. But from a history of the sad attempt of Davidson the traveller, who fell a victim to African research, we are first tempted to copy the following particulars, which also illustrate native peculiarities:

"I remember poor Davidson mentioning to me the general belief he had found prevalent amongst the Arabs in those parts of the Levant which travellers seldom frequent, that the Frank is in league with devils, witches, and unearthly beings. He told me that, on more than one occasion, he had profited by such fancies, when his life had been in danger from the wild tribes among whom he had ventured. Davidson was bald, and wore at that time a toupet. A body of Arabs, having surrounded him, had commenced plundering his effects, and threatened even his life; when suddenly Davidson, calling upon them to beware how they provoked the Christian's power, dashed his false hair to the ground, saying, 'Behold my locks; your beards shall go next!' The Arabs fled, abandoning their plunder. On another occasion, when making some astronomical observations, he was so inconveniently pressed upon by a crowd of insolent Arabs, that he found it impossible to continue his operations; so, turning to them, he said, 'O fools, seek ye destruction? Know the power of the Nazarene!' Then, beckoning one of the elders to approach, he told him to look through the sextant, whilst he, slowly moving the index, informed the barbarian that he would behold the sun to leave its course and approach the earth. The Arab, pale with fright, after a momentary glance, threw himself on the ground and begged for mercy, beseeching Davidson that he would forthwith leave their land, and take compassion upon their herds and crops, upon which he felt convinced that the Nazarene had the power to inflict murrain and blight."

Further on we read: "The madman or idiot is universally looked upon in West Barbary as a person to be held in reverence. The Moor tells you that God has retained their reason in heaven, whilst their body is on earth; and that when madmen or idiots speak, their reason is for the time permitted to return to them, and that their words should be treasured up as those of inspired persons. These wretched people are allowed to parade the streets in a state of nudity, and the maniacs sometimes prove most dangerous to unwary Europeans. A French consul-general some years ago was nearly killed by a sainted madman, and in 1830 I had a very narrow escape for my life from another. I happened to be walking on the sea-shore with my sister immediately below the walls of the town of Tangier, when I espied above us a wild-looking fellow about seventy or eighty yards off, with a clotted head of hair that bespoke a sainted madman, aiming at me with his long gun, which he had rested on the wall. We were near a rock at the time, behind which we took refuge, and waited there a good while, in the hope that the madman's patience would be worn out; but he did not stir, and the passers-by, whom I appealed to for their interference, shook their heads, muttered something about Seedy Tayeb, which proved to be the name of the saint, and went their way. In the mean time the tide was rising rapidly, and we had the unpleasant choice of being drowned or shot. We agreed it was better to risk the latter; so telling my sister to run off in another direction, I stepped forward and gave him the preference of a standing shot. The maniac took aim and fired; and I heard the ball whiz into the water behind me. I was proceeding to run up to him by a path which led to that part of the town-wall where he was standing, when I observed that he was coolly reloading his gun; and as the next shot at close quarters might have proved more effective, I thought the best thing I could do was to follow my sister; so I fairly took to my heels. Having reached home, and described to our guard the appearance of the man, we were sallying out to seize him, when the maniac himself, Seedy Tayeb, rushed into our court-yard, laughing heartily, and presented me with a basket of melons. The poor fellow was a most confirmed madman, and consequently a very great saint: and as I had not the heart to proceed formally against him, I only required that he should be imprisoned until he could be sent to the interior, whence the governor of Tangier promised he should not return."

The idea that their reason is in heaven whilst their body is on earth, is not very dissimilar from our common saying that the wits of the crazy are in the moon. Another more singular belief is described, where Mr. Hay (not without cause) anathematised the gnats which had spoilt his night's rest.

"The hadj appeared greatly shocked at my impiety. 'Mashaallah!' (the will of God) ejaculated he with reverence. 'All things were made by God for some good purpose: and now, Christian, you shall learn of me the history of the gnat. In the beginning God created the sea; and in his goodness made it sweet, even as the waters of the living fountain. And God appointed a vast extent for its dominion, and endowed it with wondrous power above all his other creatures. Then the sea, raising his head to the stars and roaring terribly, lashed the borders of the land and terrified mankind; and growing day by day more arrogant, it abused in wantonness the power given it, and, passing the limits given it by its Creator, overwhelmed the land, and, destroying every living thing that was on the face of the earth, hearkened no more to the rebukes of its Maker. And man and all God's creatures, excepting the fish, sought in vain for refuge, and were drowned in the whirlpool of its fury. Then God spake unto the sea and said, 'Hear, O sea! thou hast laughed to scorn thy Creator; and not hearkening to my voice, thou hast overleaped the limits that I ordained for thee: wherefore, lo! I will now create the most insignificant of winged insects, and I will create them in countless myriads, and thou shalt know that I am thy master and thy God.' So God created the gnat. And clouds of gnats darkened the face of the earth. And God said unto the gnats, 'Settle ye on the face of the sea, and drink thereof.' And the gnats drank; and the sea became dry; yea, the terrible sea became as nothing in the stomach of the puny gnat. And now God spake thus unto the sea as it lay in the stomach of the gnats, and said, 'Know ye now, O sea! that I am the Lord of all.' And the sea repented and acknowledged him to be the Lord. And God said unto the gnats, 'Vomit up now the waters from your stomachs.' And the gnats did as God commanded; and the sea returned unto its bed; but the waters thereof became salt, owing to the stomach of the gnats; and thus God ordained that it should remain, that the sea might know that He is the Lord, and that there is none other God.'* 'Wondrous and miraculous,' I exclaimed, 'are the ways of God! The gnat, in truth, is a wily insect. Hark ye now, O hadj, how he tunes his pipe, buzzing sweetly, 'Habeeby! Habeeby! (O my beloved! O my beloved!), and while thus fascinating us with his charms, he suddenly stoops; and, brute as he is, darts his relentless sting into the object of his admiration. There, I have killed one! and, O sea! I am thy avenger.'"

Here we must pause this week.

Anecdotes of the English Language, &c. By Samuel Pegge, Esq., F.S.A. A 3d edition, by the Rev. H. Christmas, M.A., &c. 8vo, pp. 410. London, J. B. Nichols.

DEAR old gossipping Pegge, why the Cockneys have not subscribed for your statue, to be set up as near Bow-bells as a convenient site could be procured, is to us a striking proof of ingratitude. No man has vindicated their tongue as you have done, and shewn that in their aspirations, non-aspirations, and exasperations, they are correct, whilst all the rest of the isle has been laughing at their mispronunciations. What an inscription for the base of your monument:

HIN ONOUR HOP
S. Pegge, &c.
Hereected voluntarily by the Hinabitants of Lunnun, hin the Hempire hof Cokhayne.†

Nay, but we thank Mr. Christmas for this new and agreeably noted version of a justly popular work, full of nice little bits of intelligence, full of guesses, and not very free from mistakes. A biographical notice of Mr. Pegge is prefixed, and a supplement to Grose's "Provincial Glossary" (both desirable additions) is appended. The defence of "Londonisms" is always amusing, and should make the volume a city-favourite. Alderman Lucas should swear by it; and one or two of his *confrères* might take their delight out of its pages. After this,

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* It is almost impertinent in a homebred critic to doubt such a writer's opinion on the right points of an Arab steed; but the annexed at any rate differs from the highest race introduced into England: "The hadj called my attention to a fine filly feeding with her dam among the stubble. We halted to examine her; she was a three-year old, and a vastly pretty creature, with a head, the best point of barbs, so small that she might truly have drank from a quart pot. But her fore and hind legs had been sadly disfigured by firing: this is done by the Arabs at an early age, and, instead of being considered a defect, as with us, is held rather to increase the value of the animal."

* "This legend is, I believe, peculiar to the Berber tribes. It is evidently formed on the Mosaic account of the deluge."

† "The earliest instance of any interpretation of the word *Cockney* occurs in a MS. of the fourteenth century (MS. Bib. Reg. Brit. Mus. 13 B. j. fol. 14, sec. xiv. ineuntis). 'Puer in deliciis matris nutritus, *Anglice* a Kokenay.'"

tell us no more of the improprieties of "*necessuated* (or rather *necessiated*), *curosity, stupendious, unpossible, leastwise, aggravate, conquest* (for concourse) of people, *attacted, shay* and *poshay, gownd*, &c. &c. . . . . Our readers will smile to be told that the phrases and words which this antiquary selects for defence are: 1. I *don't* know *nothing* about him. 2. *Worser, lesser, more worser.* 3. *Know'd* and *see'd.* 4. *Mought* for might. 5. *Aks* for ask. 6. *Took* for taken, and other irregular participles. 7. *Fetch a walk.* 8. *Learn* for teach, and *remember* for remind. 9. *Fit* for fought. 10. *Shall us*, &c. 11. *Summonsed* for summoned. Here, however, the charge of corruption will hardly be made. 12. *A-dry, a-hungry, a-cold*, &c. 13. *His self* for himself, *their selves* for themselves. . . . 14. *Ourn, yourn, hern*, &c. 15. *This here, that there*, &c. &c. 16. *A few while.* This we cannot recognise as an expression current among Cockneys, with whose language we conceive ourselves to be acquainted. 17. *Com'd* for came, &c. 18. *Gone with, gone dead*, &c." . . . "On the whole [said our old and estimable friend Archdeacon Nares in the 'British Critic,' and we cordially repeat the criticism] we have never seen a book of philological amusement put together in so original a style, or containing more unexpected yet apposite remarks, and authorities from a variety of books. The author chats with his reader, but his chat is always agreeable; it is the *garrula senecta*, but the garrulity is full of humour and original pleasantry; and we regret when it is at length silenced by the awful word *finis.*"

Having adopted the opinion of another for the work itself, we take nothing farther on ourselves, but to add half-a-dozen specimens of the light-charactered notes (one at p. 119 had better have been omitted).

"The Rev. Sidney Smith has coined more than one new word; perhaps the best of them is *simious*, 'apish.' The 'Quarterly Review,' in commenting upon this fact, coined also a respectable word, *nimious*, for 'excessive.' * *

"Such is the force of use and long habit, even against almost daily opportunities of correction, that I never heard any bed-maker, &c. in a college or inn of court that did not always talk of the long vocation. At Cambridge the present race of gyps (1834) call it vecation or vication, carefully avoiding the right vowel even in the change. * * *

"The use of the *W* may and frequently does arise from an inability to pronounce the letter *r*; those who labour under this disability invariably substituting a *w*. Thus a lady told me at Cambridge that 'Wichard had got some twacts which Mr. Care-wus (Carus) had given him, and he was to go to Twinity for some more.' The line, 'Around the rugged rocks the ragged rascals run their rural race,' by such persons is pronounced, 'Awound the wugged wocks the wagged wascals wun their wure-wall wace.' * * *

"It must be remarked that the regular Cockney uses *fought*, pronouncing it like *stout*, though not so often as *fit.* There is a comic song which proves this:

'Oh! cruel was the engagement in which my true love *fought*,
And cruel was the cannon-ball which knock'd his right eye out.' * * *

"There was once, to the disgrace of the English name, a board put up in the Tower, on which, in legible letters, was painted, 'It is expected that visitors should compliment the warden.' A French gentleman, not understanding the meaning of this, began to *praise* the warden, who by no means approved of this mode of fulfilling the expectations of 'the board.' He was soon undeceived, very much to his surprise, by being told that a compliment in English meant half-a-crown. * * *

"A very remarkable instance of redundancy is to be found in the name of a certain hill, Bindun Hill; the original name was Pendun Hill. The Britons called the eminence simply Pen, a hill; the Saxons, taking the word Pen as a proper name, called it Pen-dun, or Penhill. The English have, in like manner, taken the compound Pen-dun, or Bin-dun, as a proper name, and designated the eminence Bindun Hill, *i. e.* Hill-hill-hill. * * *

"The great work of Gibbon was once quoted by Sheridan in his speech on the trial of Warren Hastings 'as the luminous page of Gibbon.' Proud of the compliment, the historian every where repeated it. When this was told to Sheridan, he replied, 'I said vo-luminous.'"

A facetious appendix on Cockney colloquialisms should be mentioned before we take leave; and also a letter on negatives, and another on the word "fate."

The Order of the Administration of the Holy Communion according to the Use of the Church in Scotland. 4to. London, J. Burns.

THE episcopal church in Scotland is here furnished with its own order of the administration of the holy communion, printed in black and red, with the old notation, and ornamental borders, in the same style as Mr. Dyce's edition of the Prayer-Book with plain-tune; which work the present addition now adapts to the use of our episcopal brethren of Scotland. Its unique and appropriate features will, we doubt not, soon bring it into general favour with the priest as well as the congregation; and we need only add, that this portion is executed with the same excellence as marked the publication to which it is a companion.

We may mention, that the work before us is not a mere antiquarian curiosity, being the communion-office enjoined as of primary authority by the canons of the Scottish episcopal church; though to congregations who have been accustomed to the English form of administration the use of the office in the English Prayer-book is also permitted. The genuine Scotch office has never been printed before in a style worthy of its excellence. *We* cannot, of course, enter here upon its doctrinal peculiarities: we only state as a fact, that it resembles closely that first compiled by our reformers in the first year of Edward the Sixth and the office now in use by the American episcopalians.

The Common-place Book of History, &c. 8vo and 4to. London, Varty; Hatchard and Co.; Nisbet.

WE hear this little aid welcomed by persons competent to enter into its plan, who represent it to us as calculated to promote a taste for what is elevating and useful. Such certainly may the study of history be rendered, and to help this is the aim contemplated by the author, who has devoted time and industry to the accomplishment of his purpose. The arrangement of this little help is novel—the tabular part being original, and apparently convenient for the notation of students.

Outlines of English History; with Notices of the Manners, &c. By Henry Ince, M.A. Pp. 108. London, J. Gilbert.

"THE thirteenth thousand," says the title-page, and title-pages ought not to say "that which is not,"—vide Swift's Houhynyms. By the by, however, and not in the most remote degree applying the observation to this deserving little performance, fictitious title-pages have not seldom come within our cognisance since the *Literary Gazette* first made its bow to the public. In most cases they were worthless, in others they would have required so circumstantial a production of evidence as to prevent us from attempting their exposure. But we have seen and noted sundry sad tricks in this way. We are not, in London, far behind Paris, where, some time ago, a pamphlet was published under the title of *La Verité sur les Abus en Librairie*, or a list of works whose titles have been changed, and in this state announced again as new publications. A M. de Potter, it appears, is an active agent at this sort of legerdemain, and is said to be the same who wrote a liberal History of the Church, in six vols. 8vo., which appeared at Brussels about fifteen years ago.

LITERARY AND LEARNED.

To the Editor of the Literary Gazette.

Isle of Wight, Sept. 25, 1844.

SIR,—In Mr. Boyes's *Illustrations of the Tragedies of Æschylus and Sophocles*, &c., as quoted in your last week's notice of that learned and interesting work, occur two extracts from translations of Anglo-Saxon poems, on which I venture to trouble you with a few remarks.

The first, from Beówulf, adduced as analogous to the πλοῦτον εἵματος κακόν of Æschylus, will hardly bear the test of close examination:

"Accept this bracelet, dear Beowulph:
Be it an omen of reward to you;
And *these garments, enjoy their wealth.*"

Now, Mr. J. M. Kemble, whose masterly edition and translation of the great Anglo-Saxon epic has rendered all others valueless, thus translates the lines in question:

"*Enjoy* this ring, dear Beówulf, *O warrior, with health, and use this dress, these mighty treasures.*" The word "treasures," in the application of which to these costly gifts, selected doubtless from the κειμήλια of the grateful chief, there is nothing at all remarkable, thus stands in apposition with both the ring or bracelet and the dress (not *garments*), and not with the latter only. True, the MS. is here, as too often elsewhere, somewhat defective; but neither the text as it stands nor any plausible emendation will justify Mr. Turner's version, nor, of course, Mr. Boyes's use of the passage.

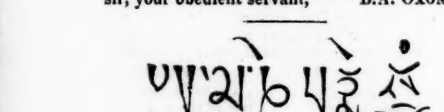
In the second extract, from Judith, quoted, and rightly, as an instance of the comparison of the serpent and the arrow, like that in the *Eumenides*, there is also an inaccuracy, whosoever the translation may be. The Anglo-Saxon compound word rendered "*serpents of Hilda*" means really nothing more than *war-serpents* (hilde-næddran, *war-adders*), *hild* (genitive *hilde*), being one of several words meaning *war* or *battle*, used as the first part of a number of Anglo-Saxon poetical compounds, and has here, at all events, if ever, nothing to do with the female name Hild, borne by, among others, the sainted Abbess of Streoneshalh, or Whitby, the patroness of Cædmon, the Anglo-Saxon Milton, and our first poet: of both we have an account in Beda.

Whether this "Hilda" with her serpents was an Anglo-Saxon fury, or merely their goddess of war—ἔφυν' ἄρ' ἐπώνυμος, in the latter case—we are not informed: however, the personification is not so bold, or rather the mistake so glaring, as in the instance of a certain *Holinga*, "very liberally," says Mr. Kemble, "given to Hnæt as his wife by some commentators" (on Beówulf), but who fortunately or unfortunately for the Frisian hero, "was not a *lady*, but an *adverb.*"

The word *hild* (*hilde*, *hilti*, and the like) did form part of many Gothic names—*Hilti-prant*, Hildebrand, *Mat-hilda*, Matilda, for example; but when used alone, as in the case of St. Hild, it most likely stood for Anglo-Saxon *hyld*, German *huld*, loyalty, grace, favour, &c., answering to our name Grace: the adjective in both languages, *hold*, means true, faithful, amiable, graceful—in short, every thing most excellent in woman. The Laird of Monkbarns, however, and others, who hold with Herodotus that woman is at the bottom of all the wars, commotions, and mischiefs which trouble the world, would perhaps prefer the ill-omened etymology, which reminds one of a bad joke once perpetrated at the expense of a young lady, named Isabella, familiarly '*Bella*, whose temper being ever and anon somewhat bellicose and viraginous, earned for her the unenviable epithet of *horrida*, "horrida Bella."

Seriously, it is much to be regretted that among so many Englishmen critically skilled in languages ancient and modern, there should be so very few who are not at the mercy of the first translation which comes to hand of any thing in that tongue which not only flourished in purity in our own country during five hundred years, but has furnished us with fifteen-twentieths of those words in which we daily speak, and think, and write. The time is gone by when we might either learn as we could from our own imperfect Anglo-Saxon scholars, or refuse to learn from Grimm, a German, or Rask, a Dane; now that, thanks to that same Dane and that same German, we have at home such masters of the language as Thorpe and Kemble, our ignorance has no excuse.

A careful examination of Anglo-Saxon poetry would doubtless bring to light many passages illustrative of the Greek and Latin poets; Beówulf especially contains not a few Homeric ideas and expressions, though exhibiting this remarkable difference of thought and style in one respect, that I believe it can boast of but one or two similes, properly so called. — I am, sir, your obedient servant, B.A. Oxon.



To the Editor of the Literary Gazette.

September 20, 1844.

Dear Sir,—The inscription at Chin-hae, in your No. 1442, for the 7th instant, is, I submit, in the Tibetan Djou-Djan, and in characters whose shape fixes the date to about A.D. 600. The words, read Amida lamu cha, mark the Amida and Priest. The first term is the sect called Omito in Chinese, Xaca of Calmouk Tartary, and Amidabu of Japan: in ancient Persian, Amuzban.—Yours truly,

B. E. Pote.

FINE ARTS.

A MONUMENT TO SHAKSPERE.*

To the Editor of the Literary Gazette.

Sir,—Presuming you are aware that England will shortly be called upon to redeem itself from the disgrace of not having publicly testified the esteem in which Shakspere is held by us as a nation, I venture to hope you will give your best energies through the medium of your columns to forward such a desirable end, and at the same time to save us, if you can, from another infliction. Let us not in future raise columns under the impression that we are perpetuating our admiration of the great, and commit the error of erecting monuments of our own folly.

Now, sir, I conceive that the fairest way is to fix upon some plan first, and have that plan sanctioned and approved, so that those who incline to subscribe may have the satisfaction of knowing that their money will be appropriately and justly used. I have been led to make the foregoing remark from the fact that the Government has been compelled to vote money to complete the Nelson column. Now, how was this? Was it that Nelson's deeds and memory were not worth ten or twenty thousands more than the public had given? No! it was that subscribers felt disgusted with what had been done, and properly refused to supply any more.

I have no doubt that a thousand ideas will be thrown out in regard to the form and character of a Shakspere Trophy, and with all humility I beg leave to submit a few suggestions. In the first place, then, I conceive that the monument to be erected should be something commensurate with his mighty mind. I do not mean in outlay; for if such were the desire, a statue upon Dover Cliff, that would appear a giant even from the shores of France, could be effected; but that would be the triumph of physical skill, while the work should be *a monument of mind in art*. I would therefore for that reason, leaving the inconsistency out of the question, banish the idea of a column — for any lad who calls Vitruvius to his aid can manage *that*.

Sculptors, architects, and painters, have lately proved that there is no lack of mind amongst them. I would call upon the architect to construct a temple, which should be dedicated to the immortal Bard; a statue—the more simple the better—should be placed in the centre, and be surrounded by groups and figures from each play and poem; the pedestals should have basso and alto-relievos following out the story each group was designed to illustrate. Every group or figure might be made the subject of competition, so that choice would present itself on every hand, as the election of the many would embody a greater amount of talent and originality of conception than could be effected by any other means, and would also facilitate the completion of the whole—a matter ever to be held in due consideration. Panels and entablatures for frescoes to illustrate those imaginings for which marble is too unyielding a material, friezes carved with processions from his plays, and wreaths formed only of the flowers mentioned in his works, might also find places; and thus the whole of his creative fancy would, as it were, be placed before the spectator in one view. Tragedy and Comedy should be found at the entrance of a vestibule for the reception of statues of those who have best delineated his characters, and for which at present we have no place fitted.

I will not weary you with detailed description or estimates; but to carry out this plan from one hundred and thirty to one hundred and fifty thousand pounds would be required; and when we remember the cost of public buildings, either of late erection or now in progress, it is easy to imagine how superb the structure would be, and how worthy of Shakspere's genius. "A hundred and fifty thousand pounds! What a vast sum!" I think I hear some one exclaim. Well, so it is at a first glance; but that sum has not been named without due consideration as to the means of raising it; and, upon explanation, you will agree with me, I think, that the collection of such an amount, large as it may sound, is easily to be effected when its intended purpose is taken into consideration. Many would undoubtedly give their ten, fifty, or hundred pounds; but the greater the number of subscribers the greater the amount of honour. Now take, for instance, the following calculation, and the extravagance of the amount (if such a term could be applied to it) will exist no longer. From late returns to parliament, we learn that there are in round numbers:

Titled nobility	4,000
Commoners, esquires, &c. . .	60,000
Clergy, lawyers, doctors, &c. .	116,000
Merchants, traders, &c. . . .	900,000
Manufacturers	500,000
Total	1,580,000

Now, supposing the head of each family gave half-a-crown, we should have the enormous sum of 197,500*l.*; and this exclusive of the reading millions, who would give their mites, and look upon it as a duty they were bound, and would be proud, to fulfil. The amount, therefore, I look upon as a matter of secondary consideration; for, as far as I am concerned, I do not know the man who would refuse his aid.

A curious pamphlet once passed through my hands; it was a proposition by Flaxman to erect a statue of Britannia, two hundred feet high, on Greenwich Hill, to commemorate our naval victories, by a subscription of one shilling each person throughout the kingdom. The then premier took great interest in the plan, and proposed to the government, "that having an agent appointed, his majesty's vessels coming from the Mediterranean should bring the material gratis." In the case shortly to be mooted, no matter how extensive the plan proposed, depend upon it, sir, the subscription would not be far off; for be it remembered no party power or faction in church or state would stay its progress, but all would combine; and combining heartily, what doubt can there be but that we should have a monument the grandeur and magnificence of which would shew to future ages our admiration of the intellectually great, and the dedication of which would be another spark of that immortality which must live and be when

"Thrones are shatter'd and their kings forgot."

Whether this letter be torn up or printed is to me a matter of little moment, as I shall still remain an admirer of the arts, the drama, and the *Literary Gazette*.*

September 1844. A.

THE DRAMA.

This has been a busy week in theatrical matters—the opening of the winter season, and the shadowing forth of what we are to expect at the various play-houses.

Drury Lane opened on Monday to a crowded house, with Balfe's *Bohemian Girl* for the eighty-

* Some time since we heard that names had been placed upon a subscription-list to the amount of nearly 18,000*l.* for a column, to be cast in iron, surmounted by a figure, which was to be 70 feet high, and that the mouth of the Thames was to be its place of destination. The names of the projector, architect, engineer, and sculptor, were at the same time mentioned; but we considered it an idle rumour. We have since been informed, however, that a site of ground has been offered; and, from later communications, we regret to say that there appears to be more truth in the rumour than we at first imagined.—*Ed. L. G.*

* We do not see, supposing this design to be carried out, why *our Valhalla*, or grand national receptacle for statues and monuments to the honour of all whose fame the country desired to perpetuate, might not take the *Shakspere Temple* as its nucleus, and be formed in connexion with that immortal centre.—*Ed. L. G.*

first time, and with its original cast with the exception of Harley, in the place of Hudson, as *Florestan*. The music was heard throughout with as much delight on the eighty-first as on the first representation, and the former was quite a counterpart of the latter, the same degree of applause being bestowed on the various performers, and the same songs receiving the compliment of an *encore*. The national anthem preceded the opera, and was spiritedly sung by the company. Then came the novelty of the evening, a ballet called the *Corsair*, founded, as its title proclaims, on Lord Byron's poem of that name. It is a gorgeous affair in scenery and appointment, but has little interest beyond, and requires considerable curtailment; the last scene, however, is a miracle of machinic achievement. The principal parts are supported by a *corps de ballet* principally selected from Her Majesty's Theatre, including Albert, Montessu, Desplaces, Delferier, &c. amongst the males, and Dumilatre as the *prima donna*. This lady has greatly improved since her last appearance in the metropolis, and in some of the scenes displayed the poetry of motion in a charming manner; we may particularise the part in which she couches in various graceful attitudes at the feet of her Turkish lord: it was a very beautiful performance, and deserved the applause it obtained. A Mlle. Auguste Delbès was a *débutante* as a *Vivandière*, and as a sprightly dancer bids fair to become very popular in a style of dancing neglected, perhaps, too much by female artistes; she executed several *pas* with great vivacity, and led off a polka with considerable spirit. Our old favourite, Miss Clara Webster, is still of the company, and in the little she had to do as the Corsair's wife, proved that she had not been idle during the recess. She appears to have acquired firmness of execution, and to have added largely to her amount of terpsychorean knowledge. She was heartily welcomed by many of her last season's admirers, and we, amongst the rest, were much pleased at her visible improvement. There is little else to remark upon the *Corsair*; with curtailment it may acquire a certain degree of popularity, as every attention has been bestowed upon its production. On Tuesday Miss Delcy re-appeared, after three years' absence in Italy, in the opera of *Cinderella*, considerably altered from Rossini. She has certainly improved in her style of singing, but has still much to learn, and, foremost of all, to leave off straining her voice for effect, which frequently renders it harsh, and must eventually prove very injurious. The Drury Lane company, and it is a very strong one, has evidently been selected for the exclusive performance of opera, ballet, and pantomime, the first specimen of which has been the revival of *Obi, or Three-Fingered Jack*.

Haymarket.—The "little theatre," with its excellent company of last season, and it would be difficult to procure a better or more harmonious one, also opened the ball on Monday, with three of last season's popular pieces, and a charming new act drop painted by Mr. Charles Marshall. It is a very beautiful scene, and struck us forcibly, looking like one of Sir W. Calcott's brilliant landscapes upon a very enlarged scale. It is a great ornament to the theatre, and harmonises well with its other new embellishments. On Wednesday Vanbrugh's comedy of the *Confederacy*, pruned of its most objectionable portions, and adapted to the more refined taste of the present day, was produced with entire success; indeed, no other result could be anticipated with a play so strongly cast. Farren and Strickland as *Moneytrap* and *Gripe*, and Mrs. E. Yarnold and Miss P. Horton as their wives; Holl as *Dick*, and Charles Mathews as *Brass*; Mrs. Glover as *Mrs. Amlet*, Madame Vestris as *Flippanta*, and Miss Julia Bennett as *Corinna*. Really a worse play than the *Confederacy*, with all its faults and want of moral, would stand a very fair chance of success with such actors in a congregation; no wonder, then, that the *Confederacy* succeeded. On Thursday a new farce by Mr. Buckstone, called *Thimble-rig*, met with a favourable reception, not from any great merit or originality in plot or dialogue, but from the bustling manner in which a quaint idea was carried out by the performers, Mrs. W. Clifford, and Messrs. Buckstone and Strickland. The author announced that, in defiance of the act of parliament, the *Thimble-rig* would be played every evening.

Lyceum.—*Martin Chuzzlewit* and *Aladdin* still continue their prosperous career, under Mrs. Keeley's clever guidance, and were attractions enow, if one might judge by the houses they drew; however, a trifle called *Out-Generalled* has been added as a variety, and has been made the means of introducing a very clever young lady to the London stage; her name is Walcot, she is graceful, sprightly, and lady-like, and, when she becomes a little more accustomed to a London audience, will prove a great acquisition to our boards. *Out-Generalled* is a smart duo-logue, supported by Miss Walcot and Mr. F. Vining, in which, after various manœuvres and disguises, the lady "out-generals" the gentleman, of course.

Adelphi.—Under its new lessee, and the management of Madame Celeste, the favourite Adelphi, prettily re-decorated and well ventilated, was opened on Saturday last with a piece entitled *Mother and Son*. It was a poor version of a drama called the *Merchant and his Clerks*, and did not meet with much success; it has since disappeared from the bills, so we need say no more about it. Its place has been supplied with *St. Mary's Eve*, a transplantation from the Haymarket, in which Celeste appears to great advantage in a part well suited to her particular style. On Wednesday a clever operetta, entitled the *Fox and the Goose*, was brought out, and, by its entire success, more than atoned for the previous failure. It is an adaptation from the French; the chief characters are admirably sustained by Mrs. Fitzwilliam, Paul Bedford, Wright, and Hudson, and it must prove an attractive afterpiece, as it is full of bustle, situation, and activity; the parts well suited to the performers, and the performers apparently well pleased with their parts. It is altogether a very merry little affair. The management has judiciously retained most of the company which has gained so much celebrity at the Adelphi, and, with several good additions, has formed a capital working body, which is sure to draw its share of public patronage and support.

Sadler's Wells.—*King John*, appointed and placed upon the stage in a manner that would do honour to the best and largest theatre in London, has been added to the list of successful Shakspeare revivals at Sadler's Wells. The house is nightly crowded to witness its representation, which is so thoroughly good in every part, that a visit to Sadler's Wells will be amply repaid even though the visitor go from the most distant part of town. We have not hitherto paid so much attention as we could have wished to this theatre, but propose to return to the subject on an early occasion; in the mean time we take the present opportunity of complimenting Mr. Greenwood and his coadjutors Mrs. Warner and Mr. Phelps upon their able and judicious management.

Astley's.—*Mazeppa*, one of the best of equestrian dramas, has been revived with great *éclat*, and with the varied scenes in the circle, and Mr. Carter and his tamed animals (a lady is now included in the cage), serves to make out a very pleasant evening's amusement.

Strand Theatre.—The winter season commenced here on Monday, *Martin Chuzzlewit* still retaining its place at the head of the bills, with the novelties of the *Vermont Wool-dealer*, and a burlesque, *La Slumbernambula*; the first introducing Mr. Marble, an American low-comedian, who gave his Americanisms and peculiarities with much humour, which procured him a favourable reception. A polka danced with spirit by Mr. Roberts and Mrs. Montgomery came in for universal praise, and a vociferous *encore*. Of the burlesque we cannot say much; it is heavy, and lacks fun—the more to be regretted as this has hitherto proved a most successful arena for such sort of facetiæ.

ORIGINAL POETRY.

MAKING A SHIFT.

Suggested by Mr. Hood's "Song of the Shirt."

You sing of making a shirt,
With tired hands and eyelids red;
As sad is the lay of those who are doom'd
"To make a shift" for their bread:
Worn! worn! worn!
On the wide world cast adrift,
And shrinking alike from pity and scorn,
Doom'd to be "making a shift."

Smile! smile! smile!
When the day wakes curious eyes;
And weep! weep! weep!
When the stars are the only spies.
Oh! rather be a slave,
Where mercy, like guilt, is arraign'd,
Than, boasting freedom, live anguish'd, yet brave,
To making shifts secretly chain'd.

Shift! shift! shift!
For the pride of days gone by;
Shift! shift! shift!
For many a cherish'd tie.
Wife, and husband, and child,
Child, and husband, and wife,
'Till the brain and heartstrings alike o'erwrought
Are lull'd in the grave from strife.

Oh! world that feels for crime,
That weeps at the woe in books,
There are tales more dread, though spoken not,
In human creatures' looks.
Worn! worn! worn!
Who on the cold world cast adrift,
Like the spider, self-consuming, weave
Their shroud in making a shift.

In many weary ways,
With self-respect oft betray'd,
At expediency's cold command,
Must many a shift be made.
Feel! feel! feel!
Yet no voice of complaining lift,
And still with a maddening effort conceal
(Scorn not, ye wise, but strive to heal!)
That silent making a shift.

And why do you talk of work?
Of honest straightforward toil?
Far worse are the lagging, moth-like cares
Which the mind's fine texture spoil.
Better the toil-worn cheek
Than the fever-flush of shame,
Worse than the toilmaster's curse
The "still, small voice's" blame.

Shift! shift! shift!
The work is never done!
For is not their doom th' Ithacan wife's,
Unravelling what she spun?
And is not their guerdon the world's contempt,
Feign'd smiles and unsatisfied pride;
Their fate insecure as rudderless bark
Blown o'er the tempestuous tide?

Shift! shift! shift!
The mind is wreck'd in time;
Shift! shift! shift!
They finish too oft with *crime*.
Woman sour'd, care-aged man,
Once youth and maiden fair,
Their rock of virtue is fretted away
By ceaseless tears of despair.

Shift! shift! shift!
How varied the toilers seem!
Some mere sons of clay,
Some bright as the Muses' stream.
Pining like exiles here,
Mourning their own high gifts,
With hands that might strike Apollo's lyre,
Degraded by making shifts!

Oh! but to meet the gaze
Of one kindly beaming eye,
That, piercing the mask of pride,
Sees the worm that cannot die!
For only one short hour
To a warm, unchiding friend
To fling aside the paltry veil
From a heart that will not bend!

Oh! for the careless joy
Of a spirit new to woe;
One certain goal for the struggler's aims,
One *wish* that time's course were slow!
Might sympathy not dissolve the spell
That warps their noblest thought?
Alas! none guess how a word can bless
Save those who thus have fought!

With lips that seem mocking mirth,
With eye by suspicion lit,
Many are wasting their primest years,
Living by chances and wit:
Pray! pray! pray!
That the last shift each ever makes
May be from a world where they breath'd but care
To a haven of peace in that region fair
Where the soul from bondage breaks!

JANET W. WILKINSON.

VARIETIES.

Art-Unions. — The last of the private fine-art distributions took place on Monday—that promoted by Mr. Boys at the Freemasons' Tavern, and Mrs. Parkes's at Covent Garden Theatre: both appeared to afford the various subscribers, especially winners, entire satisfaction, and at different hours during the day presented very animated scenes.

Polytechnic Institution. — A new optical instrument, called a Proteoscope, has been added to the other attractions at the Polytechnic. It is somewhat similar to the dissolving views in its application; and the subject it is at present illustrating is Collins' *Ode to the Passions*, accompanied by vocal and instrumental music. It is a very interesting exhibition, and well worthy a visit.

The Ray Society.—The friends of this new Society for the cultivation of Natural History had an hour's meeting at the York Museum on Wednesday, previous to the chair of Section D. being taken. It was well attended, some general resolutions passed, and a considerable addition to the number of members admitted. We anticipate from this, that it will immediately occupy a distinguished station among our public scientific bodies. Natural history is deservedly a most popular pursuit, and publications upon it always acceptable. Besides its London locale, the Ray Society has agreed to a brief meeting every year where the British Association assembles.

Mr. Nathan Dunn, the indefatigable collector of the extensive Chinese exhibition now to be seen at Knightsbridge, died last week in Switzerland.

LITERARY NOVELTIES.

LIST OF NEW BOOKS.

The Annual Register; or, a View of the History and Politics of the Year 1843, 8vo, 16*s.*—Apuleius de Deo Socratis, ed. T. W. A. Buckley, 12mo, 4*s.*—Pocket-Book of Practical Medicine, by W. H. Kittoe, M.D., 3d edit. 12mo, 10*s.*—Religion the Life of Man, by W. Edmond, LL.D., 12mo, 2*s. 6d.*—Sermons preached at Plymouth, by the Rev. H. C. Smith, 12mo, 5*s.*—Sermons on various Subjects, by the Rev. W. W. Fowler, 12mo, 4*s. 6d.*—Morning Exercises at Cripplegate, &c., Vol. IV. 8vo, 12*s.*—Rides in the Pyrenees, by Miss S. Bunbury, 2 vols. post 8vo, 21*s.*—Points and Pickings of Information about China and the Chinese, 12mo, 7*s.*—Gilbert's Summary of the Occupations of the People, 4to, 3*s.*; or with Maps, 4*s.*—Lucy Hardinge; being the Second Series of "Afloat and Ashore," 3 v. post 8vo, 1*l.* 11*s. 6d.*—History of Sweden, by Anders Fryxell, edited by Mary Howitt, 2 v. post 8vo, 21*s.*—Standard Novels, Vol. 95, The Two Admirals, fcp. 6*s.*—Lectures to Farmers on Agricultural Chemistry, by A. Petyholdt, post 8vo, 7*s. 6d.*—Complete Course of French, Part I., by A. Le Dhuy, 8vo, 8*s.*—Peter Parley's Annual and Christmas Present, 1845, 5*s.*—Paley's Ecclesiologist's Guide to the Churches round Cambridge, fcp. 2*s.*—Tate's Counting-House Guide, Part 1, forming an Appendix to the Elements of Commercial Arithmetic, 12mo, 4*s.*—Ditto, Part 2, forming a Supplement and Key to Part 1, 6*s.*; Parts 1 and 2 together, 9*s. 6d.*—Lectures on Osteology and the Ligaments, by B. B. Cooper, 8vo, 8*s.*—Rev. Dr. J. T. Barrett's Course of Psalms, selected from the New Version, 18mo, 1*s. 6d.*—Sacred History, New Testament, sq. 2*s. 6d.*—Ditto, Old and New Testament, sq. 4*s. 6d.* cloth.—Songs and Hymns for the Nursery, sm. 4to, 5*s. 6d.*

DENT'S TABLE FOR THE EQUATION OF TIME.

[This table shews the time which a clock or watch should indicate when the sun is on the meridian.]

1844.	h.	m.	s.	1844.	h.	m.	s.
Oct. 5	11	48	20·7	Oct. 9	11	47	13·7
6	—	48	3·3	10	—	46	58·0
7	—	47	46·3	11	—	46	42·9
8	—	47	29·8				

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W. T. FAWCETT, Secretary.

September 28, 1844.

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